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Supreme Court of the United States

October Term, 1995

PACIFIC LUMBER COMPANY,

Petitioner,

vs.

MARBLED MURRELET, (Brachyramphus marmoratus); ENVIRONMENTAL PROTECTION INFORMATION CENTER,

Respondents.

Petition for a Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

PETITION FOR A WRIT OF CERTIORARI

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153 pp

QUESTIONS PRESENTED

1. Does "impairment" of breeding of an unspecified number of a protected species "actually kill or injure" actual individual members of that species, so as to constitute "harm" under section 9 of the Endangered Species Act?

2. May an injunction issue under section 11 of the Endangered Species Act "for a violation" of section 9—which section is not violated absent "actual death or injury to identifiable animals" — upon a showing of a possible future impairment to the species as a whole?

3. Under the Federal Rules of Evidence, and under this Court's opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), can evidence that is irrelevant and insufficient as a matter of law (when admitted without a foundational objection) support a judgment in the absence of any relevant, probative evidence?

RULE 29.6 LIST

Petitioner Pacific Lumber Company hereby identifies the following parent companies and nonwholly owned subsidiaries: MAXXAM Inc. (formerly known as MCO Holdings); MAXXAM Group Inc.; MAXXAM Properties Inc.; Kaiser Aluminum & Chemical Corp.; and Kaiser Aluminum Corp.

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OPINIONS BELOW

The opinion of the district court is reported at 880 F. Supp. 1343, and is printed in Appendix C. The first opinion of the Court of Appeals for the Ninth Circuit is reported at 83 F.3d 1060, and is printed in Appendix B. The amended opinion of the Court of Appeals and order denying rehearing and rehearing en banc is reported at __ F.3d __, 1996 WL 350048 and is printed in Appendix A.

STATEMENT OF JURISDICTION

The amended opinion of the Court of Appeals for the Ninth Circuit and order denying rehearing and rehearing en banc was filed and entered on June 26, 1996. Appx. A, pp. 1a-3a. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

STATUTES, REGULATIONS AND RULES INVOLVED

This case involves the Endangered Species Act of 1973, 87 Stat. 884, 16 U.S.C. §§ 1531 *et seq.*, section 17.3 of Title 50 of the Code of Federal Regulations (1994), and Rules 401, 402 and 702 of the Federal Rules of Evidence. Pertinent portions of the Endangered Species Act (16 U.S.C. §§ 1531, 1532, 1538 and 1540) and of 50 C.F.R. § 17.3, and Federal Rules of Evidence 401, 402 and 702, are set forth in Appendix D.

STATEMENT OF THE CASE

A. Statement of Facts

Petitioner owns forest lands in northern California that, under state law, can be used only for growing and harvesting commercial timber. RT 1276:2-11. Petitioner proposed to conduct a selective harvest of some of that timber from a 137-acre stand of trees within the larger 440-acre Owl Creek forest in southern Humboldt County, California. RT 747:21-22; Appx. C, pp. 48a-49a, 51a-52a. The forest consists of old-growth redwood and Douglas fir trees. Appx. C, p. 49a.

The Owl Creek forest is considered "suitable" habitat for the marbled murrelet, a small seabird that resides on the Pacific coast with a large population in Alaska and a smaller population in Canada and in Washington, Oregon and California. RT 83:2-14, 769:15-18, 1035:12-24; ER 134. The denomination of a stand as "suitable" does not mean that it has been or is being used for nesting purposes. RT 707:4-7.

Murrelets spend most of their time at sea (RT 253:10-12), coming inland only for purposes associated with nesting. RT 255:17-25. Generally, in California, Washington and Oregon, murrelets nest in mature and old-growth stands. RT 59:22-60:6, RT 60:22-61:1, 256:3-5; ER 134, ER 135. There are approximately 65,000 acres of "suitable" murrelet habitat in public parks and other public lands in northern California. RT 1196:1-9; Pl.Exh. 251, p. 2.

The murrelet is listed by the Secretary of Interior as a "threatened" (not "endangered") species throughout its range in Washington, Oregon and California. RT 82:17-19. The timber harvest plan ("THP-237"), as ultimately approved and accepted by state regulatory agencies after modifications

specifically designed to protect murrelets, provides for selective harvesting 40% to 60% of the trees in the 137-acre harvest area. RT 698:15-699:17, 700:4-22, 751:18-752:5, 753:5-19, 1225:5-23, 1239:22-1240:24; Exhs. 816, 817, 818; Appx. C, pp. 51a-52a. The harvest was scheduled to occur in the fall and winter months (between September 15 and April 1), after the murrelet breeding season when the birds are at sea. RT 1269:7-24; Exh. 832, p. 2. Under the plan, petitioner may not conduct any additional harvesting in the THP-237 area as long as the marbled murrelet is listed as threatened or endangered under state or federal law or until there is a federally approved marbled murrelet management plan or habitat conservation plan. RT 1273:1-21; Exh. 833.

B. The Proceedings Below

The district court: This action was filed on April 16, 1993, as a citizen suit under section 11 of the Endangered Species Act ("ESA") (16 U.S.C. § 1540(g)), on behalf of Environmental Protection Information Center, Inc. ("EPIC") and purportedly on behalf of the marbled murrelet. CR 1. The complaint sought, inter alia, to enjoin implementation of THP-237.

During the course of an eight-day court trial, EPIC's scientific experts offered opinions that, inter alia, murrelets used the THP-237 area for nesting purposes and that implementation of the harvest plan would interfere with and impair breeding in that area. *See, e.g.*, RT 304-307, 317-382. The foundation for those opinions was examined by both parties at trial. *See id.* During and at the conclusion of the trial, petitioner contended that EPIC's purported scientific opinion evidence failed to meet the tests for reliability and relevance set forth in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), and that it therefore could not support a judgment. *E.g.*, RT 1820:6-17; CR 228, pp. 9-13.

The district court concluded that marbled murrelets used the proposed harvest area for nesting and that implementation of THP-237 would both "harm" and "harass" murrelets, thereby causing a "take" in violation of section 9 of the ESA, 16 U.S.C. § 1538(a)(1)(B). Appx. C. The district court entered judgment in favor of EPIC on June 20, 1995, enjoining implementation of THP-237 and awarding attorneys' fees. ER 130. A timely appeal was taken. ER 131.

The appeal: During the pendency of petitioner's appeal to the Ninth Circuit, this Court issued its opinion in *Babbitt v. Sweet Home Chap. of Communities for a Great Oregon*, 115 S. Ct. 2407 (1995), holding valid 50 C.F.R. § 17.3 (1994), the Secretary of the Interior's regulation ("Regulation") defining "harm" under section 9 of the ESA. In so holding, this Court declared that "actual death or injury of a protected animal is necessary for a violation" of section 9 (115 S. Ct. at 2410, n.2) and that "the Government cannot enforce the § 9 prohibition until an animal has actually been killed or injured." 115 S. Ct. at 2415.

Thereafter, the Ninth Circuit affirmed the judgment of the district court, holding that habitat modification that results in "impaired breeding" of an unspecified number of a protected species is, in and of itself, "harm" under the Regulation and section 9. Appx. A, pp. 16a-17a. The Ninth Circuit also held that an injunction could issue under sections 9 and 11 of the ESA upon a showing of "a reasonably certain threat of imminent harm" to a protected species as a whole (as opposed to individual members of the species), dismissing as dictum this Court's statements in *Sweet Home* that "may be read" to the contrary. Appx. A, pp. 8a-14a. The Ninth Circuit declined to assess whether the evidence before the district court was relevant and sufficient to establish that "harm" actually would occur, holding that — by failing to object to the *admissibility* of

the purported scientific evidence —petitioner had waived the argument that the evidence had no *probative value* and was therefore insufficient to support the judgment as a matter of law. Appx. A, pp. 14a-16a.[1]

REASONS FOR GRANTING THE WRIT

This case presents important and unresolved questions with respect to the ESA as interpreted in *Sweet Home* and regarding application of the Federal Rules of Evidence, both generally and as applied in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

First, the Ninth Circuit reached the unsupportable conclusion that, under *Sweet Home*, a habitat modification that "significantly impairs" breeding of a protected species is, *in and of itself*, "harm" under the Regulation. Appx. A, pp. 16a-17a. In doing so, the Ninth Circuit effectively read the limiting phrase "where it actually kills or injures wildlife" out of the Regulation. By eliminating the critical limitation that, to result in a "take," land use or development activities must "actually kil[l] or injur[e]" a member of a protected species, the Ninth Circuit's ruling has radically enlarged the scope of the Regulation and introduced substantial uncertainty into the application of the ESA. The Ninth Circuit's vague test, unless corrected by this Court, will subject vast tracts of property, both private and public, to extensive litigation.

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1. The district court had also made directly contradictory findings with respect to the issue whether the proposed harvest would "harass" marbled murrelets, on the one hand finding that "it is impossible to determine" the existence of "harassment" on the facts before the court and on the other hand making the conclusory finding that "harassment" would occur. Appx. C, pp. 93a-94a, 95a. Because the Ninth Circuit held that the district court's "harm" finding was sufficient, it declined to consider the "harassment" findings. Appx. A, p. 18a, n.5.

Second, the Ninth Circuit, adhering to its pre-*Sweet Home* opinions and dismissing this Court's statements to the contrary in *Sweet Home* as "dictum," held that a civil injunction may issue if a "reasonably certain" threat of "harm" to a protected species is shown. Appx. A, pp. 8a-14a. However, under the ESA, an injunction can issue *only* against a person "who is alleged to be in violation" of the Act. 16 U.S.C. § 1540(g)(1)(A). And *Sweet Home* could not have been more clear: "actual death or injury *of a protected animal* is necessary *for a violation*" of section 9. 115 S. Ct. 2410, n.2 (emphasis added). Hence, section 9 *cannot* be enforced "until an animal has actually been killed or injured." *Id.* at 2415.

Last, the Ninth Circuit — in holding that irrelevant and speculative evidence can support a judgment if no objection was made to its *admissibility* — created a rule in direct conflict with other circuits which recognize that admissibility and probative value are entirely separate concepts. Appx. A, pp. 14a-16a. Under the Ninth Circuit's rule, evidence that has no probative weight whatever — in this case, purported scientific opinion that fails to meet the *Daubert* tests — can nonetheless support a judgment if no objection is made to its admissibility. No matter how outrageous the opinion and no matter that there is a total lack of data to support it, its probative value cannot be challenged absent an objection to its admissibility. Absent resolution of the conflict by this Court, district courts will be faced with uncertainty and confusion in ruling on challenges to the sufficiency of evidence in these circumstances.

I.

BY HOLDING THAT "IMPAIRMENT" OF A PROTECTED SPECIES' BREEDING IS IN AND OF ITSELF "HARM" UNDER THE ESA, THE NINTH CIRCUIT HAS RADICALLY EXPANDED THE SCOPE OF THE REGULATION.

As this Court repeatedly noted in *Sweet Home*, the Secretary's Regulation "emphasize[s] that *actual death or injury of a protected animal* is necessary for a violation" of section 9. 115 S. Ct. 2410 n.2 (emphasis added); and *see id.* at 2412 n.9, 2412-2413, 2414, n.13, 2415. The Court specifically pointed out that the Regulation does *not* forbid adverse habitat modification as such; rather, the Regulation's scope is "limit[ed] to habitat modifications that actually kill or injure wildlife." 115 S. Ct. at 2417. Hence, there can be no reasonable dispute that, under *Sweet Home*, habitat modification alone, even that which adversely affects members of a protected species, is not enough to establish "harm" under section 9.

Here, there was *no* evidence of even a potential of direct harm to a murrelet. Moreover, although the district court found that the proposed harvest would result in "substandard habitat" for the murrelet which, in turn, would "decrease the chances of successful mating" (ER 121-122, 123-124 (Findings 95-97, 99-100)), there was not even a finding that it would be impossible for returning murrelets to nest in or about the harvest area. *Cf. Sweet Home*, 115 S. Ct. at 2419 (concurring opinion of Justice O'Connor). Rather, "some individual marbled murrelets will likely fail to find nest sites." ER 122 (Finding 97).[2]

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2. Although the district court made some broad findings that "marbled murrelets will actually be killed or injured by the logging operation" (*e.g.*, Appx. C, p. 90a), in context the district court was simply utilizing the (Cont'd)

The Ninth Circuit held that these findings were sufficient to establish "harm" under *Sweet Home*. The court first declared that:

> The majority opinion [in *Sweet Home*] did not address whether impaired breeding amounts to harm to the species impaired or whether it harms only the general population. The majority avoided the question.

Appx. A, p. 16a. Then, despite having just determined that this Court had "avoided the question," the Ninth Circuit opined that, "under *Sweet Home*, a habitat modification which significantly impairs the breeding and sheltering of a protected species amounts to 'harm' under the ESA." *Id.* at p. 17a. In so ruling, the Ninth Circuit misinterpreted *Sweet Home* in two significant respects.

First, as emphasized in *Sweet Home*, section 9 is directed to *actual* harm "*to members* of an endangered species" (115 S. Ct. at 2413) (emphasis added), not to some abstract "harm" to the species as a whole. Second, in redefining "harm" as merely "habitat modification which significantly impairs breeding and sheltering," the Ninth Circuit ignored the Regulation's key phrase, "where it actually kills or injures wildlife." However, as this Court emphasized in *Sweet Home*, that limiting phrase cannot be read out of the Regulation. Rather,

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(Cont'd)
conclusory language of the Regulation and not making a factually-based finding of any direct injury. EPIC's own evidence was that murrelets *could not* be present in the forest during the two to three months when they are at sea and flightless due to molting (RT 109:16-22, 110:9-14). Accordingly, as one of EPIC's experts testified, harvesting during the non-nesting season would "probably not" cause direct harm to murrelets. RT 147:12-15.

> every term in the regulation's definition of "harm" is subservient to the phrase "an act which actually kills or injures wildlife."

115 S. Ct. at 2414 n.13.

Despite prolixity, the district court's findings here amount to no more than a conclusion that, due to the reduced size of a potential nesting area, an unspecified number of birds will "likely" not be able to nest as successfully as in the past or may not nest at all. That, as is underscored by Justice O'Connor in her concurring opinion in *Sweet Home*, is not enough:

> That a protected animal could have eaten the leaves of a fallen tree or could, perhaps, have fruitfully multiplied in its branches is not sufficient under the regulation. Instead, . . . the regulation requires demonstrable effect (i.e., actual injury or death) on actual, individual members of the protected species.

115 S. Ct. at 2419. There is no finding, or evidence to support such a finding, in this case.[3]

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3. The district court did make a conclusory finding that the harvest would "result in a high probability that the remaining population of marbled murrelets in this region will become extinct." Appx. C, p. 91a. This finding (which failed to explain whether "this region" meant the timber harvest area itself or perhaps some larger portion of the murrelet's range) is based entirely upon the testimony of a single witness and is fatally deficient in two respects. First, the theorized "extinction" was dependent upon the occurrence of independent "catastrophic events," such as a forest fire or oil spill at sea, wholly unrelated to implementation of the proposed harvest. RT 99:10-11.

(Cont'd)

The Ninth Circuit's ruling, if not corrected, will result in an enormous expansion in the scope of the Regulation. Obviously, most projects involving land use or development may, in some manner, "impair" an animal's natural activities. Under the Ninth Circuit's broad definition of "harm," an injunction may issue against a project on private, as well as public, land upon a showing of such mere "impairment" of activity. As a result, vast amounts of property will be subject to lengthy and expensive litigation in which the Ninth Circuit's vague rule is tested and applied.

Sweet Home should not lead to such a result. As this Court emphasized in that case, neither habitat modification nor "impairment" of a protected animal's activities is enough to establish a violation of section 9. Rather, both habitat modification and "impairment" are "subservient to the phrase 'an act which actually kills or injures wildlife.' " 115 S. Ct. at 2414, n.13. If, as the Ninth Circuit would have it, "impaired breeding" alone constitutes injury, that critical phrase will be rendered superfluous, and certainty and consistency in application of the Regulation will be lost.

(Cont'd)

Therefore, the theory fails in the face of "ordinary requirements of proximate causation and foreseeability." *Sweet Home*, 115 S. Ct. at 2412 n.9, 2414 n.13. Second, the theory was, as the witness conceded, only a "concept" without "hard data to support" it. RT 99:2-4, 160:18-19. Therefore, under the principles enunciated by this Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), the testimony was insufficient to support the finding. *See* discussion, *infra*, pp. 16-21.

II.

BY HOLDING THAT INJUNCTIVE RELIEF IS AVAILABLE UNDER SECTIONS 9 AND 11 OF THE ESA WHEN AN ACT MAY AFFECT A SPECIES AS A WHOLE AS OPPOSED TO AN INDIVIDUAL AND IDENTIFIABLE ANIMAL, THE NINTH CIRCUIT HAS DISRUPTED THE CAREFULLY ORDERED SYSTEM ESTABLISHED BY CONGRESS FOR ENFORCEMENT OF THE ESA.

At issue here is the appropriate basis for the issuance of an injunction under section 9 of the ESA. The Ninth Circuit held that "[a] reasonably certain threat of imminent harm *to a protected species* is sufficient for issuance of an injunction under section 9 of the ESA." Appx. A, pp. 13a-14a (emphasis added). Thus, under the Ninth Circuit's ruling, an injunction may issue when no actual injury has occurred *and* no specific, individual animal can be identified as subject to the yet-to-occur injury. However, when the proposed act is the cutting down of a tree in which it is admitted that no individual protected animal resides, an injunction should not issue simply because the removal of the tree may theoretically have a negative impact on a protected species as a whole.

Under section 11 of the ESA, an injunction may be sought only against a person "who is alleged to be *in violation* of any provision of this Act or regulation issued under the authority thereof." 16 U.S.C. § 1540(g)(1)(A) (emphasis added). As noted above, in *Sweet Home*, this Court emphasized that "actual death or injury *of a protected animal* is necessary *for a violation*" of section 9 (115 S. Ct. 2410 n.2 (emphasis added)), and therefore "the Government cannot enforce the § 9 prohibition *until an animal has actually been killed or injured.*" 115 S. Ct. at 2415 (emphasis added). Thus, the express

provisions of the ESA, and *Sweet Home* itself, mandate that a violation of the ESA causing actual injury or death to a particular animal, not the possibility or "threat" of a future injury to a presently unidentified and unidentifiable animal, is a prerequisite for the issuance of an injunction under the ESA.

This conclusion is in accord with both the structure and purposes of the ESA as discussed in *Sweet Home*. Unlike section 7, which applies to threats to an entire species, *i.e.*, acts "likely to jeopardize the continued existence of any endangered species or threatened species" (16 U.S.C. § 1536(a)(2)), section 9 is directed to "habitat modification that results in actual injury or death *to members* of an endangered or threatened species." *Sweet Home*, 115 S. Ct. at 2412-2413 (emphasis added). Hence,

> Section 7 imposes a broad, affirmative duty to avoid adverse habitat modifications that § 9 does not replicate, and § 7 does not limit its admonition to habitat modification that "actually kills or injures wildlife."

115 S. Ct. at 2415. It is precisely because of the limitations built into section 9 that a violation *cannot* occur unless there is injury to a specific, protected animal. And, the same limitations should prevent the issuance of an injunction under section 11 until that violation has occurred.

The Ninth Circuit, however, dismissed this Court's ruling that "*actual* death or injury *of a protected animal* is necessary for a violation" (115 S. Ct. 2410 n.2) (emphasis added), asserting that this language does not "purport[] to limit injunctive relief under the ESA to past violations." Appx. A, p. 11a. This misses the point. Section 11 unequivocally provides that an injunction can issue only against a person "in

violation" of the Act, and this Court has declared that there is no violation of section 9 absent "actual death or injury *of a protected animal.*" 115 S. Ct. 2410 n.2 (emphasis added). Hence, an injunction can issue against violations that actually affect specific, identifiable animals but not against acts that *may* affect the species as a whole.

The Ninth Circuit had no answer at all to this Court's declaration that section 9 cannot be enforced "until an animal has actually been killed or injured" (115 S. Ct. at 2415), other than to dismiss it as "dictum." Appx. A, p. 13a. But the statement is more than "dictum." It is a critical part of this Court's discussion of the validity of the "harm" Regulation under the ESA. A lower court is bound " 'not only to the holdings of [this Court's] prior cases but also to their explications of the governing rules of law.' " *Seminole Tribe v. Florida*, 116 S. Ct. 1114, 1129 (1996). Moreover, even if dictum, the statement is part of a reasoned analysis and not to be lightly disregarded; " 'an important part of the Court's rationale for the result that it reache[s] . . . is entitled to greater weight.' " *Id.*

The Ninth Circuit also purported to find comfort in this Court's observation in *Sweet Home* that

> the § 9 prohibition on takings, which Congress defined to include "harm," places on respondents a duty to avoid harm that habitat alteration *will* cause the birds unless respondents first obtain a permit pursuant to § 10.

115 S. Ct. at 2412, quoted at Appx. A, p. 13a (emphasis by Court of Appeals). Obviously, absent a section 10 permit, there is a section 9 duty to avoid "harm." If that duty is violated, then

section 9 can be enforced. However, that truism says nothing about the requisites for the issuance of an injunction. Thus, the quoted statement does not support the Ninth Circuit's view that a threat of harm to a protected species suffices for an injunction based on section 9, and it provides no basis to disregard what this Court expressly declared in *Sweet Home*.[4]

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4. The Ninth Circuit also placed heavy reliance (Appx. A, pp. 9a-10a) on its pre-*Sweet Home* opinion in *Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 71 (9th Cir. 1995). That opinion, however, was based upon a number of erroneous premises. For example, although the *Rosboro* court correctly noted that Congress "sought to provide the Attorney General with the same authority already accorded to private citizens" to sue under section 11 when it amended the ESA in 1982, it also concluded that private citizens (and therefore the Attorney General) could seek to enjoin "prospective harm." 50 F.3d at 786. *Sweet Home* is to the contrary: "the Government cannot enforce the § 9 prohibition until an animal has actually been killed or injured." 115 S. Ct. at 2415. In addition, the *Rosboro* court relied on an exception to the 60-day notice-before-suit provision (16 U.S.C. § 1540(g)(2)(C)) as evidence of Congress' intent "to stop imminent threats of injury to protected wildlife." 50 F.3d at 786. However, that exception applies only to suits against the Secretary under section 4 (determination of endangered and threatened species), not a citizen suit such as this one. The failure to provide a similar exception for the citizen suit provision (16 U.S.C. § 1540(g)(1)(A)) provides evidence of an intent contrary to that inferred by the *Rosboro* court.

III.

THE COURT OF APPEALS' RULE THAT A JUDGMENT MAY BE SUPPORTED BY IRRELEVANT AND SPECULATIVE EVIDENCE WITH NO PROBATIVE VALUE IS IN CONFLICT WITH THE RULE RECOGNIZED BY OTHER CIRCUITS, AND IT PRESENTS IMPORTANT ISSUES WITH RESPECT TO THE APPLICATION OF THE FEDERAL RULES OF EVIDENCE AND THIS COURT'S OPINION IN *DAUBERT*.

As this Court noted in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), under Rule 401 of the Federal Rules of Evidence, "relevant evidence" is

> that which has "any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."

509 U.S. at 587. Conversely, irrelevant evidence has no probative weight; it "cannot prove or disprove a consequential fact." *Weinstein's Evidence*, Vol. 1, ¶ 103[02], pp. 103:13-103:14 (1995).

In *Daubert*, this Court set forth various criteria for the determination of the relevancy and reliability of scientific evidence; *i.e.*, whether such evidence can be tested, whether it has been subject to peer review and/or publication, and whether it has received "general acceptance." 509 U.S. at 593-594. This Court concluded:

> [T]he Rules of Evidence — especially Rule 702 — do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. Pertinent evidence based on scientifically valid principles will satisfy those demands.

Id. at 597.

Based on the testimony of EPIC's scientific experts, the district court held that implementation of the harvest would cause "harm" to murrelets.[5] However, as one of EPIC's key witnesses candidly admitted:

> [T]here's no data to show that any thinning [of the forest] will be beneficial to a murrelet, and there's no data showing that it would be detrimental. In other words, there isn't information to show what — the kind of harvesting they've proposed at THP[-237], what effect that will have on murrelets.

RT 379:5-9. In *Daubert*, this Court emphasized that, in order to assess the reliability and relevance of the purported scientific testimony, "[t]he focus . . . must be solely on principles and methodology, not on the conclusions that they generate." 509 U.S. at 595. Hence, the conclusory testimony by EPIC's witnesses that the proposed harvest would result in "harm" to murrelets, unsupported by any data, had no probative value.

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5. EPIC's witnesses testified to essentially three propositions: (1) The THP-237 harvest area was probably utilized by murrelets for nesting; (2) Implementation of the proposed harvest would impair breeding by murrelets; and (3) Implementation of the proposed harvest would result in increased predation on murrelets. *See, e.g.*, RT 300:6-11, 304:12-305:9.

Here, in this judge-tried case, petitioner determined not to press its objections to the *admissibility* of the purported scientific evidence during the course of the trial. Instead, petitioner decided to allow EPIC to present its case, to examine the bases for the purported scientific evidence, and then to challenge the sufficiency of that evidence to support a judgment. In pursuing this course of action, petitioner did not thereby somehow invest irrelevant and insufficient evidence with weight that it never had:

> If the evidence is received without objection, it becomes part of the evidence in the case, and is usable as proof *to the extent of the rational persuasive power it may have*. The fact that it was inadmissible does not prevent its use as proof *so far as it has probative value*. . . . Relevancy and probative worth, however, stand on a different footing. *If the evidence has no probative force, or insufficient probative value to sustain the proposition for which it is offered, the want of objection adds nothing to its worth and it will not support a finding*. It is still irrelevant or insufficient.

McCormick on Evidence, § 54 (4th ed. 1992) (emphasis added).

Depending upon the circumstances of a case, a litigant may well choose not to object to admission of a witness' testimony, for example, testimony that the moon is made of blue cheese, so that it can demonstrate the extent of the testimonial deficiency. But that hardly justifies a finding by the trier of fact that the moon is indeed made of blue cheese, merely — indeed, solely— because objections to *admissibility* were not made or, if made, rulings on those objections were not obtained.

The Ninth Circuit agreed with the basic premise that scientific evidence that is unreliable and irrelevant under *Daubert* is necessarily insufficient to support a judgment. Appx. A, p. 15a. However, the court avoided its duty to analyze the weight of EPIC's purported scientific evidence by creating the novel rule that, by failing to obtain a ruling on objections to the *admissibility* of unreliable and irrelevant evidence, a party waives *all* arguments pertaining to it, including the objection that the evidence is *insufficient* as a matter of law to support the judgment. Appx. A, pp. 15a-16a. Thus, according to the Ninth Circuit, irrelevant evidence that is nothing more than "subjective belief or unsupported speculation" (509 U.S. at 590) *can* support a judgment if a party fails to obtain a ruling on an objection to its admissibility.[6]

The Ninth Circuit's ruling is in direct conflict with the rule applied by other circuits. For example, the Sixth Circuit, in an opinion that foreshadowed *Daubert*, held that unsupported "scientific evidence" "cannot legitimately form the basis for a jury verdict." *Turpin v. Merrell Dow Pharmaceuticals, Inc.*, 959 F.2d 1349, 1360 (6th Cir. 1992). Four other Courts of Appeals recognize generally that "relevant evidence admitted without objection may properly support a verdict, *so far as it has probative value*." *United States v. Yamin*, 868 F.2d 130, 135

6. In its prior decision in *Hirsch v. Immigration and Naturalization Service*, 308 F.2d 562, 567 (9th Cir. 1962), the Ninth Circuit had unequivocally held that "[f]ailure to object . . . cannot make irrelevant evidence relevant." Inexplicably, the Ninth Circuit ignored the *Hirsch* decision, even though it was cited and discussed in both petitioner's reply brief and petition for rehearing. The Ninth Circuit cited instead two other decisions (*Fenton v. Freedman*, 748 F.2d 1358 (9th Cir. 1984); *Dale Benz, Inc., Cont. v. American Cas. Co. of Reading, Pa.*, 305 F.2d 641 (9th Cir. 1962)) that held only that, by failing to object to incompetent evidence at trial, a party waives the right to raise admissibility issues on an appeal. Appx. A, p. 15a. Those cases do not support the Ninth Circuit's holding that evidence having no probative value can support a judgment.

(5th Cir. 1989) (emphasis added); *accord*: *United States v. Hugh Chalmers Chevrolet-Toyota, Inc.*, 800 F.2d 737, 739 (8th Cir. 1986); *Passaic Daily News v. N.L.R.B.*, 736 F.2d 1543, 1554 n.15 (D.C. Cir. 1984); *Gibson v. Elgin, Joliet, & Eastern Railway Co.*, 246 F.2d 834, 836 (7th Cir. 1957).[7]

There was no basis for the Ninth Circuit's assertion (Appx. A, p. 15a) that petitioner would somehow have obtained an "unfair advantage" if allowed to raise relevancy and sufficiency arguments on appeal. If this were a case in which the plaintiff could have laid "a better foundation" (*id.*), then there might be some policy basis for such reasoning. Thus, a different case might be presented if EPIC had offered only its experts' conclusory opinions without attempting to provide a basis for them, and no objection had been made and no cross-examination undertaken. Here, however, the bases for the purported scientific opinions offered by EPIC's witnesses were fully explored at trial in both examination and cross-examination, and the evidence — as conceded by EPIC's key witness — demonstrates that those opinions failed the *Daubert* tests; *i.e.*, that they were speculative, irrelevant, and insufficient to support a judgment.

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7. The commentators are in accord: Wright & Graham, *Federal Practice and Procedure*, Vol. 22, Evidence § 5166, p. 67 (1978) ("Failure to object to the admissibility of the evidence does not waive the right to object to its sufficiency"); *Weinstein's Evidence*, Vol. 1, ¶ 103[02], pp. 103:14-103:15 (1995) ("[A] court may not rely on irrelevant evidence to support a verdict despite the fact that it was received without objection, since, by definition, such evidence cannot prove or disprove a consequential fact").

This rule is recognized in state courts as well. *See, e.g., Hoover Community Hotel Development Corp. v. Thompson*, 167 Cal. App. 3d 1130, 1137, 213 Cal. Rptr. 750, 755 (1985); *Marshall v. Kleinman*, 186 Conn. 67, 438 A.2d 1199, 1201-1202 (1982); *Craig v. Citizens Trust Co.*, 26 N.E.2d 1006, 1010 (S. Ct. Ind. 1940); *In re Holmes*, 379 Pa. 599, 109 A.2d 523, 526 (1954).

The Ninth Circuit's holding is truly aberrational. But, unlike most aberrations, it will have widespread consequences. The ruling will affect application of both the Federal Rules of Evidence and this Court's opinion in *Daubert*. If allowed to stand, the Ninth Circuit's ruling will create conflict between the circuits, and will foster uncertainty in the district courts with respect to the rules governing sufficiency of evidence in general and scientific evidence under *Daubert* in particular.

CONCLUSION

For the reasons stated, this Court should grant this petition for a writ of certiorari.

Respectfully submitted,

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APPENDIX A — ORDER AND OPINION FILED MAY 7, 1996 AND AMENDED JUNE 26, 1996

Marbled MURRELET, (Brachyramphus marmoratus); Environmental Protection Information Center,

Plaintiffs-Appellees,

v.

PACIFIC LUMBER COMPANY,

Defendant-Appellant.

No. 95-16504.

United States Court of Appeals,
Ninth Circuit.

Argued and Submitted March 14, 1996.

Filed May 7, 1996.
Amended June 26, 1996.

Appeal from the United States District
Court for the Northern District of California
Louis Charles Bechtle,
District Judge, Presiding

Walter R. Allan, San Francisco, California, for the defendant-appellant.

Macon Cowles, Boulder, Colorado; John Paul Graff, Graff & O'Neil, Portland, Oregon; Charles S. Crandall, San Diego, California; William A. Rossbach, Missoula, Montana; Susan R. O'Neill, Boulder, Colorado; Mark P. Harris, Arcata, California, for the plaintiffs-appellees.

Before: DAVID R. THOMPSON and A. WALLACE TASHIMA, CIRCUIT JUDGES, and STEPHEN V. WILSON, * District Judge.

THOMPSON, Circuit Judge.

ORDER

The opinion filed May 7, 1996 is amended as follows:

1. At slip opinion page 5463, the word "evidentiary" in the third line of the second paragraph is changed to "Daubert."

2. At slip opinion page 5463, the last sentence of the second full paragraph is amended to read: "The rationale behind this rule applies to Pacific Lumber's Daubert argument in this appeal, even though it couches its argument in terms of insufficiency of the evidence, because its insufficiency argument is identical to the admissibility objection which it waived."

With the foregoing amendment, the petition for rehearing is denied.

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* Honorable Stephen V. Wilson, District Judge for the Central District of California, sitting by designation.

Appendix A

The full court was advised of the suggestion for rehearing en banc, and no judge of the court requested a vote on whether to rehear the matter en banc. The suggestion for rehearing en banc is rejected.

OPINION

Pacific Lumber Company wanted to harvest trees on a portion of its land in an old-growth forest known as Owl Creek. The Environmental Protection Information Center (EPIC) brought suit in its own name and in the name of the marbled murrelet to enjoin Pacific Lumber's proposed logging plan. EPIC alleged that the logging would result in a "take" of marbled murrelets in violation of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531 et seq. After an eight-day bench trial, the district court issued a permanent injunction enjoining Pacific Lumber from harvesting the trees.

In this appeal, Pacific Lumber challenges the district court's injunction on the ground that the Supreme Court's opinion in Babbitt v. Sweet Home Chap. of Communities for a Great Oregon, __ U.S. __, 115 S.Ct. 2407, 132 L.Ed.2d 597 (1995), requires evidence of past harm to a protected species before an injunction may issue, and the district court's injunction was founded upon a threat of future harm. Pacific Lumber also contends the evidence was insufficient to support the findings of harassment and harm because EPIC's scientific evidence of impaired breeding was unreliable under Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

Appendix A

We have jurisdiction over the final judgment of the district court pursuant to 28 U.S.C. § 1291, and we affirm.[1]

I
FACTS

The marbled murrelet is an extremely secretive seabird that flies miles inland to breed in solitary nests in old-growth forests. Each year breeding murrelets return to the same forest "stand" or grouping of trees. They do not build a nest; rather, the female lays a single egg each year in a natural depression in a moss-covered limb of a large old-growth tree. Marbled murrelet nests are extremely susceptible to avian predators such as ravens, hawks, and jays. Some experts believe that, even under ideal circumstances, more than 50% of marbled murrelet nests fall victim to predation. Marbled murrelets do not breed until they are several years old, and adults do not necessarily breed every year.

The population of marbled murrelets has declined rapidly in this century. The most significant factor in this decline has been the destruction of old-growth coastal coniferous forests. More than 96% of the marbled murrelet's nesting habitat has been lost to commercial logging in the past 150 years. On September 28, 1992, the marbled murrelet was listed as a "threatened species" under the ESA.

Owl Creek is an isolated 440 acre stand of contiguous old-growth redwood and Douglas fir trees located 22 miles inland

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1. The Cities of Fortuna, Eureka, and Rio Dell, and the Pacific Legal Foundation have moved to file an amici curiae brief in support of Pacific Lumber. This motion was filed late and there was no attempt to show good cause for the late filing. The motion is denied. See Fed. R.App. P. 29.

from the Pacific coast in Humboldt County, California. It is completely surrounded by previously harvested clear-cut and second-growth forests. Pacific Lumber's Timber Harvest Plan 237 (THP-237), by which it proposes to log trees in Owl Creek, encompasses a 237-acre, kidney-shaped segment of its forest land. Because of the large size of Owl Creek's old-growth redwood and Douglas fir trees, the high degree of canopy closure, the existence of suitable nest platforms, and its proximity to the ocean, Owl Creek, including the area within Pacific Lumber's proposed THP-237, is suitable nesting habitat for the marbled murrelet.

On April 11, 1990, Pacific Lumber submitted THP-237 to the California Department of Forestry and Fire Protection (CDF) for approval. The CDF refused to approve the logging plan because it did not provide sufficient mitigation measures to prevent a "take" of the marbled murrelet, in violation of the California Endangered Species Act (CESA). Nearly two years later, on March 13, 1992, the California Board of Forestry overruled the CDF and conditionally approved Pacific Lumber's THP-237. This approval was contingent on Pacific Lumber conducting marbled murrelet surveys in Owl Creek in compliance with the Pacific Seabird Group's "Methods for surveying Marbled Murrelets at Inland Forested Sites" (PSG Protocol),[2] and Pacific Lumber sharing its survey results with the California Department of Fish and Game (CDFG), to ensure that no "take" of marbled murrelets would occur.

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2. The Pacific Seabird Group is a professional scientific organization which has taken the lead role in coordinating and promoting research on marbled murrelets, and in providing researchers and land managers with standardized techniques to determine marbled murrelet use of inland forested sites.

Pacific Lumber conducted surveys sporadically for the next three years. The surveys were not conducted in compliance with the PSG Protocol. The district court found the surveys were conducted in such a way as to avoid detection of marbled murrelets, and to understate the numbers of those murrelets which were detected. Despite this, over one hundred detections were made including many instances of "occupied behavior."[3]

Twice in 1992, Pacific Lumber surreptitiously conducted logging operations in Owl Creek. The first instance was in June, 1992. Before the CDFG received notice, Pacific Lumber commenced logging on a Friday and continued over the weekend. When the CDF became aware of this logging, the CDF asked Pacific Lumber to stop and it did. During the logging, however, Pacific Lumber had harvested areas immediately adjacent to murrelet survey stations where several detections had been recorded.

The second surreptitious logging occurred over the Thanksgiving holiday weekend in 1992, despite repeated warnings by the United States Fish and Wildlife Service (USFWS) in October and November that logging in Owl Creek would likely cause a "take" of marbled murrelets in violation of the ESA.

The complaint in this case was filed on April 16, 1993, as a citizen suit under section 7 of the ESA, 16 U.S.C. § 1640(g). The trial lasted from August 15 to September 8, 1994. On February 27, 1995, the district court entered its memorandum

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3. According to the PSG Protocol, "occupied behavior" is behavior that has been observed in stands with evidence of nesting. The PSG Protocol finds instances of "occupied behavior" to be a strong indication that murrelets are using the stand to nest.

order including findings of fact and conclusions of law. In this order, the court concluded that implementation of Pacific Lumber's proposed THP-237 would both "harass" and "harm" marbled murrelets and thereby cause a "take" in violation of the ESA.[4] Judgment was entered on June 20, 1995, which enjoined the implementation of THP-237 and awarded $1,110,344.29 to EPIC in attorney fees. This appeal followed.

II
DISCUSSION

A. Waiver

The first issue we consider is whether Pacific Lumber has waived its right to argue in this appeal that evidence of a threat of future harm, as opposed to evidence of past actual harm, is legally insufficient for the issuance of the district court's injunction. Pacific Lumber did not raise this argument in the district court.

As a general rule, we will not consider an issue raised for the first time on appeal. Bolker v. Commissioner, 760 F.2d 1039, 1042 (9th Cir.1985). There are three exceptions to this rule. We have discretion to consider an issue raised for the first time on appeal: (1) to prevent a miscarriage of justice or to preserve the integrity of the judicial process; (2) to decide an issue when there has been an intervening change in the law; or (3) to decide an issue which is purely one of law and does not depend on an inadequately developed factual record. Id.

The only exception which could apply in this case is the

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4. THP-237, as modified, contemplates a 137-acre harvest area in which 40% to 60% of the trees would be harvested.

second. If Pacific Lumber's interpretation of Sweet Home is correct, this recent Supreme Court decision would be an intervening change in the law. We cannot decide whether Pacific Lumber's interpretation of Sweet Home is correct without considering the issue it raises. Accordingly, we exercise our discretion to review the merits of Pacific Lumber's argument that Sweet Home compels the conclusion that evidence of a threat of future harm, as opposed to evidence of past actual harm, is legally insufficient for the issuance of the district court's injunction.

B. Threat of Future Harm

Pacific Lumber argues the district court had no authority to issue the injunction because the ESA permits an injunction only when a person "is alleged to be in violation of any provision" of the Act, 16 U.S.C. § 1540(g)(1)(A), meaning, according to Pacific Lumber, that the harm must have already occurred. Pacific Lumber contends this conclusion is compelled by the Court's holding in Sweet Home, which decision, it argues, nullified our opinion in Forest Conservation Council v. Rosboro Lumber Co., 50 F.3d 781 (9th Cir. 1995). We disagree.

The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of endangered species and threatened species." 16 U.S.C § 1531(b). To help achieve this purpose the ESA authorizes citizen suits "to enjoin any person . . . who is alleged to be in violation of any provision of this chapter or regulation issued under the authority thereof . . . . 16 U.S.C. § 1540(g)(1)(A).

Section 1538(a)(1)(B) of the ESA makes it a violation of

the Act for anyone to "take" an endangered species. "Threatened" species are also protected by this provision. 50 C.F.R. § 17.3 1 (a). The term "take" is defined to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). The Secretary of the Interior (Secretary) defines "harass" and "harm" as follows:

> Harass in the definition of "take" in the Act means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.
>
> Harm in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

50 C.F.R. § 17.3.

In this circuit, we have repeatedly held that an imminent threat of future harm is sufficient for the issuance of an injunction under the ESA. See e.g. Rosboro, 50 F.3d at 783; National Wildlife Fed'n v. Burlington North. R.R., 23 F.3d 1508, 1511 (9th Cir. 1994); Palila v. Hawaii Dept. of Land and

Natural Resources, 852 F.2d 1106, 1108 (9th Cir. 1988) (Palila II).

In Rosboro, decided three months before the Supreme Court's decision in Sweet Home, an environmental group filed a citizen suit under the ESA seeking an injunction to prevent proposed logging which would impact the habitat of two spotted owls. Rosboro, 50 F.3d at 783. The district court granted summary judgment in favor of the defendant Rosboro Lumber concluding the ESA requires a plaintiff to show either a past or current injury to a protected species. Id. We reversed, holding:

> The district court's construction is antithetical to the basic purpose of the ESA to protect endangered and threatened species and prevent their further decline. The language and legislative history of the ESA, as well as applicable case law support our holding today that a showing of a future injury to an endangered or threatened species is actionable under the ESA.

Id.

This holding in Rosboro was not nullified by Sweet Home. In Sweet Home, parties dependent on the forest product industry brought an action for declaratory relief against the Secretary and the USFWS, facially challenging the Secretary's definition of "harm." __ U.S. at __, 115 S.Ct. at 2410. The plaintiffs argued that Congress did not intend the word "take" to include habitat modification as the Secretary's "harm" definition provided. Id.

Appendix A

The Supreme Court determined that the text of the Act provided three reasons for concluding the Secretary's interpretation was reasonable. Id. at 2412. First, the ordinary understanding of the word "harm" supports an interpretation that does not require an act of direct violence to an animal. An indirect cause, such as habitat modification, also comes within the meaning of "harm" in the statute. Id. at 2412-13. Second, the broad purpose of the ESA supports the extension of protection to include habitat modification. Id. at 2413-14. Third, the permit system set up by the 1982 amendment to the ESA strongly suggests Congress understood the ESA to prohibit indirect as well as deliberate takings. Id. at 2414.

Pacific Lumber relies on a footnote in the Sweet Home opinion in which the Court notes that the "harm" regulation was promulgated in 1975 and then amended in 1981 "to emphasize that actual death or injury of a protected animal is necessary for a violation." __ U. S. at __ n. 2, 115 S.Ct. at 2410 n. 2. Pacific Lumber contends this footnote means injunctive relief is allowed only against someone who has already violated the Act. We disagree. Nothing in the Court's footnote 2 purports to limit injunctive relief under the ESA to past violations. The Secretary amended the "harm" regulation to prevent a finding of harm from habitat modification alone, without any attendant harm to a protected species. As we explained in Rosboro:

> because the Secretary was concerned that the old definition of "harm" could be read to mean habitat modification alone, the Secretary inserted the phrase "actually kills or injures wildlife" to preclude claims that only involve habitat modification without any attendant requirement of death or injury

> to protected wildlife. 46 Fed.Reg. 54748-49 (1981).
>
> Nowhere does the re-definition of "harm" or its explanatory commentary require historic injury to protected wildlife.

50 F.3d at 784 (emphasis in original).

Pacific Lumber also relies on a passage in Sweet Home in which the Court stated:

> Respondents' argument that the Government lacks any incentive to purchase land under § 5 when it can simply prohibit takings under § 9 ignores the practical considerations that attend enforcement of the ESA. Purchasing habitat lands may well cost the Government less in many circumstances than pursuing civil or criminal penalties. In addition, the § 5 procedure allows for protection of habitat before the seller's activity has harmed any endangered animal, whereas the Government cannot enforce the § 9 prohibition until an animal has actually been killed or injured.

Sweet Home, __ U.S. at __, 115 S.Ct. at 2415 (emphasis added). Relying on this language, Pacific Lumber argues no injunction may issue until the death or injury of a protected species has actually occurred. We reject this argument.

Appendix A

The facts of Sweet Home did not require the Court to address the question whether a showing of a threat of future harm is sufficient for an injunction. The case involved a facial challenge to the Secretary's definition of "harm." To the extent the Sweet Home opinion may be read to say past injury is required before an injunction may issue, such a statement is dictum.

Furthermore, the remainder of the Sweet Home opinion indicates that the Court did not intend to alter case law which held that an injunction may issue upon a showing of a threat of imminent harm. The Court explicitly found the Secretary's interpretation of the law reasonable. Id. at 2416. The Court paraphrased the Secretary's view that "the § 9 prohibition on takings, which Congress defined to include 'harm,' places on respondents a duty to avoid harm that habitat alteration will cause the birds unless respondents first obtain a permit." Id. at 2412 (emphasis added). By finding this view reasonable, the Court approved an interpretation of the ESA which prevents activity that will cause future harm. This was our interpretation in Rosboro.

In a more recent opinion, we cited both Rosboro and Sweet Home as support for the proposition that the citizen suit provision of the ESA "allows private plaintiffs . . . to enjoin private activities that are reasonably certain to harm a protected species." Sierra Club v. Babbitt, 65 F.3d 1502, 1512 (9th Cir.1995); see also Loggerhead Turtle v. County Council of Volusia, 896 F.Supp. 1170, 1179-80 (D.Fla.1995).

We conclude that the Supreme Court's decision in Sweet Home does not overrule Rosboro. A reasonably certain threat of imminent harm to a protected species is sufficient for issuance

of an injunction under section 9 of the ESA. Rosboro, 50 F.3d at 786; Burlington North. R.R., 23 F.3d at 1511; American Bald Eagle v. Bhatti, 9 F.3d 163, 166 (1st Cir. 1993).

C. Sufficiency of the Evidence

Pacific Lumber bases its challenge to the sufficiency of the evidence on several arguments. Its principal argument is that the evidence fails to meet the standard for reliable scientific evidence under Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

1. The Daubert challenge.

In Daubert, the Supreme Court made clear that the Federal Rules of Evidence, specifically Rule 702, not Frye v. United States, 293 F. 1013 (D.C.Cir.1923), governs the admissibility of expert scientific evidence. 113 S.Ct. at 2799. The appropriate test of admissibility depends on the trial court's determination of a reliable foundation and relevance to the issues at trial. "Pertinent evidence based on scientifically valid principles will satisfy those demands. " Id.

Daubert supplies a test for admissibility of scientific evidence. 113 S.Ct. at 2791 ("In this case we are called upon to determine the standard for admitting expert scientific testimony in a federal trial."). Pacific Lumber's Daubert challenge, however, israised in the context of an insufficiency-of-theevidence argument, not a challenge to the admission of the evidence. In Pacific Lumber's view, whether admitted at trial or not, EPIC's scientific evidence of impaired breeding of marbled murrelets fails the Daubert test because it is irrelevant and unreliable, and therefore is insufficient to support the district court's judgment.

Although we recognize that evidence which is unreliable is necessarily insufficient, the appropriate time to raise Daubert challenges is at trial. By failing to object to evidence at trial and request a ruling on such an objection, a party waives the right to raise admissibility issues on appeal. Fenton v. Freedman, 748 F.2d 1358, 1360 (9th Cir.1984); Dale Benz, Inc., Contractors v. American Cas. Co., 305 F.2d 641, 643 (9th Cir.1962). The rationale behind this rule applies to Pacific Lumber's Daubert argument in this appeal, even though it couches its argument in terms of insufficiency of the evidence, because its insufficiency argument is identical to the admissibility objection which it waived.

Pacific Lumber raised its Daubert objectionsin the district court in its pretrial "Objections To Evidence," filed June 27, 1994. The district court, however, did not rule on these objections and Pacific Lumber did not request a ruling. This is clear from Pacific Lumber's failure to state in its briefs on appeal where in the record it requested, or the trial court made, any ruling on the Daubert objections. See, Circuit Rule 28-2.5. Nor has Pacific Lumber provided as part of the excerpt of record in this appeal the "portion of the reporter's transcript recording any discussion by court or counsel involving" the challenge to admissibility of EPIC's scientific evidence. See, Circuit Rule 30-1.3(a)(vii).

By failing to request a ruling in the district court on its Daubert objections, Pacific Lumber evaded that court's decision of the issue, and denied EPIC the opportunity to lay a better foundation for the evidence. See Fenton, 748 F.2d at 1360. In this circumstance, permitting Pacific Lumber to challenge on appeal the reliability of EPIC's scientific evidence under Daubert, in the guise of an insufficiency-of-the-evidence

argument, would give Pacific Lumber an unfair advantage. Pacific Lumber would be "free to gamble on a favorable judgment before the trial court, knowing that [it could] seek reversal on appeal because of [its] failure to obtain a ruling on [its] objections." Id. We will not permit this.

We conclude Pacific Lumber waived its Daubert objections to EPIC's scientific evidence of impaired breeding by failing to request a ruling on the admissibility of the evidence in the district court.

2. Whether impaired breeding is "harm."

Pacific Lumber next argues that even if EPIC's scientific evidence of impaired breeding is considered, impaired breeding is not "harm" to an actual bird, but rather is harm to the population and therefore is legally insufficient to qualify as "harm" under the ESA, 16 U.S.C. § 1532(19). Pacific Lumber relies on Sweet Home for this argument.

Neither the majority nor the concurring opinion in Sweet Home provides any support for Pacific Lumber's argument. The majority opinion did not address whether impaired breeding amounts to harm to the species impaired or whether it harms only the general population. The majority avoided the question. See __ U. S. at __, n. 13, 115 S.Ct. at 2414 n. 13. The dissent in Sweet Home believed the Secretary's "harm" regulation was too broad because it included impaired breeding as harm when, in the dissent's view, impaired breeding was harm to a population of animals and not to an actual animal as required by statute. Id. at 2430 (Scalia, J., dissenting).

In her concurrence, Justice O'Connor disagreed with the

dissent, arguing it was difficult to dismiss the notion that "significant impairment of breeding injures living creatures." Id. at 2419 (O'Connor, J., concurring). Noting that the dictionary definition of "injure" includes "impair," Justice O'Connor stated that at least complete impairment of breeding would be injury to the living creature so impaired. The concurrence concluded:

> In any event, even if impairing an animal's ability to breed were not, in and of itself, an injury to that animal, interference with breeding can cause an animal to suffer other, perhaps more obvious, kinds of injury.

Id. (emphasis in original).

Most importantly, however, the majority in Sweet Home upheld the facial validity of the Secretary's "harm" regulation. That regulation defines harm to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. § 17.3. Thus, under Sweet Home, a habitat modification which significantly impairs the breeding and sheltering of a protected species amounts to "harm" under the ESA. Accord Rosboro, 50 F.3d at 788. "Harm" under the ESA, therefore, includes the threat of future harm. Id. We next consider whether there was sufficient evidence of a threat of future harm.

3. Sufficiency of the evidence of future harm.

Evidence was presented in the district court that there were "approximately 100 detections of marbled murrelets at Owl

Creek, throughout the birds' breeding season, for a period of three consecutive years," including many instances of "occupied behavior." Evidence of occupied nesting behavior was also provided by the PSG Protocol. In addition, several experts testified to the probability of the murrelets' nesting in Owl Creek, and that implementation of Pacific Lumber's harvesting plan would likely harm marbled murrelets by impairing theirbreeding and increasing the likelihood of attack by predators on the adult murrelets as well as the young.

We conclude there was sufficient evidence to support the district court's findings. The district court did not clearly err in finding marbled murrelets were nesting in Owl Creek and that there was a reasonable certainty of imminent harm to them from Pacific Lumber's intended logging operation.[5]

III
CONCLUSION

In Rosboro, we held a reasonably certain threat of future harm is sufficient to support a permanent injunction under the ESA. Rosboro, 50 F.3d at 783. The Supreme Court's decision in Sweet Home does not affect the vitality of that holding. Rosboro remains good law.

Pacific Lumber's attack on the sufficiency of the evidence to support the district court's findings and judgment hinges largely upon its assertion that EPIC's scientific evidence of

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5. We need not consider the sufficiency of the evidence to support the district court's finding that implementation of Pacific Lumber's THP-237 would "harass" the marbled murrelets. The district court's finding of "harm" under the ESA is sufficient to support its injunction without a finding of harassment.

impaired breeding did not comply with the scientific reliability requirement of Daubert. Pacific Lumber is precluded from raising this argument on appeal, because it failed to request a ruling on its Daubert objections to admissibility of the evidence in the district court. The evidence is sufficient to support the district court's findings and judgment.

AFFIRMED.

APPENDIX B — OPINION OF THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT DECIDED MAY 7, 1996

MARBLED MURRELET, (Brachyramphus marmoratus); Environmental Protection Information Center, Plaintiffs-Appellees,

v.

Bruce BABBITT, Secretary, Department of Interior; John Turner, Director, United States Fish and Wildlife Service, et al., Defendants,

and

Pacific Lumber Company, Defendant-Appellant.

No. 95-16504.

United States Court of Appeals, Ninth Circuit.

Argued and Submitted March 14, 1996.

Decided May 7, 1996.

* * *

Walter R. Allan, San Francisco, California, for defendant-appellant.

Macon Cowles, Boulder, Colorado, for plaintiffs-appellees.

Appeal from the United States District Court for the

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Northern District of California; Louis Charles Bechtle, District Judge, Presiding.

Before: THOMPSON and TASHIMA, Circuit Judges, and WILSON,* District Judge.

DAVID R. THOMPSON, Circuit Judge:

Pacific Lumber Company wanted to harvest trees on a portion of its land in an old-growth forest known as Owl Creek. The Environmental Protection Information Center (EPIC) brought suit in its own name and in the name of the marbled murrelet to enjoin Pacific Lumber's proposed logging plan. EPIC alleged that the logging would result in a "take" of marbled murrelets in violation of the Endangered Species Act (ESA), 16 U.S.C. §§ 1531 *et seq.* After an eight-day bench trial, the district court issued a permanent injunction enjoining Pacific Lumber from harvesting the trees.

In this appeal, Pacific Lumber challenges the district court's injunction on the ground that the Supreme Court's opinion in *Babbitt v. Sweet Home Chap. of Communities for a Great Oregon*, __ U.S. __, 115 S.Ct. 2407, 132 L.Ed.2d 597 (1995), requires evidence of past harm to a protected species before an injunction may issue, and the district court's injunction was founded upon a threat of future harm. Pacific Lumber also contends the evidence was insufficient to support the findings of harassment and harm because EPIC's scientific evidence of impaired breeding was unreliable under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

* Honorable Stephen V. Wilson, District Judge for the Central District of California, sitting by designation.

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We have jurisdiction over the final judgment of the district court pursuant to 28 U.S.C. § 1291, and we affirm.[1]

I

FACTS

The marbled murrelet is an extremely secretive seabird that flies miles inland to breed in solitary nests in old-growth forests. Each year breeding murrelets return to the same forest "stand" or grouping of trees. They do not build a nest; rather, the female lays a single egg each year in a natural depression in a moss-covered limb of a large old-growth tree. Marbled murrelet nests are extremely susceptible to avian predators such as ravens, hawks, and jays. Some experts believe that, even under ideal circumstances, more than 50% of marbled murrelet nests fall victim to predation. Marbled murrelets do not breed until they are several years old, and adults do not necessarily breed every year.

The population of marbled murrelets has declined rapidly in this century. The most significant factor in this decline has been the destruction of old-growth coastal coniferous forests. More than 96% of the marbled murrelet's nesting habitat has been lost to commercial logging in the past 150 years. On September 28, 1992, the marbled murrelet was listed as a "threatened species" under the ESA.

Owl Creek is an isolated 440 acre stand of contiguous old-

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1. The Cities of Fortuna, Eureka, and Rio Dell and the Pacific Legal Foundation have moved to file an amici curiae brief in support of Pacific Lumber. This motion was filed late and there was no attempt to show good cause for the late filing. The motion is denied. See Fed. R.App. P. 29.

growth redwood and Douglas fir trees located 22 miles inland from the Pacific coast in Humboldt County, California. It is completely surrounded by previously harvested clear-cut and second-growth forests. Pacific Lumber's Timber Harvest Plan 237 (THP-237), by which it proposes to log trees in Owl Creek, encompasses a 237-acre, kidney-shaped segment of its forest land. Because of the large size of Owl Creek's old-growth redwood and Douglas fir trees, the high degree of canopy closure, the existence of suitable nest platforms, and its proximity to the ocean, Owl Creek, including the area within Pacific Lumber's proposed THP-237, is suitable nesting habitat for the marbled murrelet.

On April 11, 1990, Pacific Lumber submitted THP-237 to the California Department of Forestry and Fire Protection (CDF) for approval. The CDF refused to approve the logging plan because it did not provide sufficient mitigation measures to prevent a "take" of the marbled murrelet, in violation of the California Endangered Species Act (CESA). Nearly two years later, on March 13, 1992, the California Board of Forestry overruled the CDF and conditionally approved Pacific Lumber's THP-237. This approval was contingent on Pacific Lumber conducting marbled murrelet surveys in Owl Creek in compliance with the Pacific Seabird Group's "Methods for surveying Marbled Murrelets at Inland Forested Sites" (PSG Protocol),[2] and Pacific Lumber sharing its survey results with the California Department of Fish and Game (CDFG), to ensure that no "take" of marbled murrelets would occur.

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2. The Pacific Seabird Group is a professional scientific organization which has taken the lead role in coordinating and promoting research on marbled murrelets, and in providing researchers and land managers with standardized techniques to determine marbled murrelet use of inland forested sites.

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Pacific Lumber conducted surveys sporadically for the next three years. The surveys were not conducted in compliance with the PSG Protocol. The district court found the surveys were conducted in such a way as to avoid detection of marbled murrelets, and to understate the numbers of those murrelets which were detected. Despite this, over one hundred detections were made including many instances of "occupied behavior."[3]

Twice in 1992, Pacific Lumber surreptitiously conducted logging operations in Owl Creek. The first instance was in June, 1992. Before the CDFG received notice, Pacific Lumber commenced logging on a Friday and continued over the weekend. When the CDF became aware of this logging, the CDF asked Pacific Lumber to stop and it did. During the logging, however, Pacific Lumber had harvested areas immediately adjacent to murrelet survey stations where several detections had been recorded.

The second surreptitious logging occurred over the Thanksgiving holiday weekend in 1992, despite repeated warnings by the United States Fish and Wildlife Service (USFWS) in October and November that logging in Owl Creek would likely cause a "take" of marbled murrelets in violation of the ESA.

The complaint in this case was filed on April 16, 1993, as a citizen suit under section 11 of the ESA, 16 U.S.C. § 1540(g). The trial lasted from August 15 to September 8, 1994. On February 27, 1995, the district court entered its memorandum

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3. According to the PSG Protocol, "occupied behavior" is behavior that has been observed in stands with evidence of nesting. The PSG Protocol finds instances of "occupied behavior" to be a strong indication that murrelets are using the stand to nest.

order including findings of fact and conclusions of law. In this order, the court concluded that implementation of Pacific Lumber's proposed THP-237 would both "harass" and "harm" marbled murrelets and thereby cause a "take" in violation of the ESA.[4] Judgment was entered on June 20, 1995, which enjoined the implementation of THP-237 and awarded $1,110,344.29 to EPIC in attorney fees. This appeal followed.

II

DISCUSSION

A. Waiver

The first issue we consider is whether Pacific Lumber has waived its right to argue in this appeal that evidence of a threat of future harm, as opposed to evidence of past actual harm, is legally insufficient for the issuance of the district court's injunction. Pacific Lumber did not raise this argument in the district court.

As a general rule, we will not consider an issue raised for the first time on appeal. *Bolker v.. Commissioner*, 760 F.2d 1039, 1042 (9th Cir.1985). There are three exceptions to this rule. We have discretion to consider an issue raised for the first time on appeal: (1) to prevent a miscarriage of justice or to preserve the integrity of the judicial process; (2) to decide an issue when there has been an intervening change in the law; or (3) to decide an issue which is purely one of law and does not depend on an inadequately developed factual record. *Id.*

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4. THP-237, as modified, contemplates at 137-acre harvest area in which 40% to 60% of the trees would be harvested.

The only exception which could apply in this case is the second. If Pacific Lumber's interpretation of *Sweet Home* is correct, this recent Supreme Court decision would be an intervening change in the law. We cannot decide whether Pacific Lumber's interpretation of *Sweet Home* is correct without considering the issue it raises. Accordingly, we exercise our discretion to review the merits of Pacific Lumber's argument that *Sweet Home* compels the conclusion that evidence of a threat of future harm, as opposed to evidence of past actual harm, is legally insufficient for the issuance of the district court's injunction.

B. Threat of Future Harm

Pacific Lumber argues the district court had no authority to issue the injunction because the ESA permits an injunction only when a person "is alleged to be in violation of any provision" of the Act, 16 U.S.C. § 1540(g)(1)(A), meaning, according to Pacific Lumber, that the harm must have already occurred. Pacific Lumber contends this conclusion is compelled by the Court's holding in *Sweet Home*, which decision, it argues, nullified our opinion in *Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781 (9th Cir. 1995). We disagree.

The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of endangered species and threatened species." 16 U.S.C. § 1531(b). To help achieve this purpose the ESA authorizes citizen suits "to enjoin any person . . . who is alleged to be in violation of any provision of this chapter or regulation issued under the authority thereof. . . ." 16 U.S.C. § 1549(g)(1)(A).

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Section 1538(a)(1)(B) of the ESA makes it a violation of the Act for anyone to "take" an endangered species. "Threatened" species are also protected by this provision. 50 C.F.R. § 17.31(a). The term "take" is defined to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). The Secretary of the Interior (Secretary) defines "harass" and "harm" as follows:

> *Harass* in the definition of "take" in the Act means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.
>
> *Harm* in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

50 C.F.R. § 17.3.

In this circuit, we have repeatedly held that an imminent threat of future harm is sufficient for the issuance of an injunction under the ESA. *See e.g. Rosboro*, 50 F.3d at 783; *National Wildlife Fed'n v. Burlington North. R.R.*, 23 F.3d

1508, 1511 (9th Cir. 1994); *Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106, 1108 (9th Cir. 1988) (*Palila II*).

In *Rosboro*, decided three months before the Supreme Court's decision in *Sweet Home*, an environmental group filed a citizen suit under the ESA seeking an injunction to prevent proposed logging which would impact the habitat of two spotted owls. *Rosboro*, 50 F.3d at 783. The district court granted summary judgment in favor of the defendant Rosboro Lumber concluding the ESA requires a plaintiff to show either a past or current injury to a protected species. *Id.* We reversed, holding:

> The district court's construction is antithetical to the basic purpose of the ESA to protect endangered and threatened species and prevent their further decline. The language and legislative history of the ESA, as well as applicable case law support our holding today that a showing of a future injury to an endangered or threatened species is actionable under the ESA.

Id.

This holding in *Rosboro* was not nullified by *Sweet Home*. In *Sweet Home*, parties dependent on the forest product industry brought an action for declaratory relief against the Secretary and the USFWS, facially challenging the Secretary's definition of "harm." __ U.S. at __, 115 S.Ct. at 2410. The plaintiffs argued that Congress did not intend the word "take" to include habitat modification as the Secretary's "harm" definition provided. *Id.*

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The Supreme Court determined that the text of the Act provided three reasons for concluding the Secretary's interpretation was reasonable. *Id.* at __, 115 S.Ct. at 2412. First, the ordinary understanding of the word "harm" supports an interpretation that does not require an act of direct violence to an animal. An indirect cause, such as habitat modification, also comes within the meaning of "harm" in the statute. *Id.* at __, 115 S.Ct. at 2412-13. Second, the broad purpose of the ESA supports the extension of protection to include habitat modification. *Id.* at __, 115 S.Ct. at 2413-14. Third, the permit system set up by the 1982 amendment to the ESA strongly suggests Congress understood the ESA to prohibit indirect as well as deliberate takings. *Id.* at __, 115 S.Ct. at 2414.

Pacific Lumber relies on a footnote in the *Sweet Home* opinion in which the Court notes that the "harm" regulation was promulgated in 1975 and then amended in 1981 "to emphasize that actual death or injury of a protected animal is necessary for a violation." __ U.S. __ n. 2, 115 S.Ct. at 2410 n. 2. Pacific Lumber contends this footnote means injunctive relief is allowed only against someone who has already violated the Act. We disagree. Nothing in the Court's footnote 2 purports to limit injunctive relief under the ESA to past violations. The Secretary amended the "harm" regulation to prevent a finding of harm from habitat modification alone, without any attendant harm to a protected species. As we explained in *Rosboro*:

> because the Secretary was concerned that the old definition of "harm" could be read to mean habitat modification *alone*, the Secretary inserted the phrase "actually kills or injures wildlife" to preclude claims that only involve habitat modification without

> any attendant requirement of death or injury to protected wildlife. 46 Fed.Reg. 54748-49 (1981).
>
> Nowhere does the re-definition of "harm" or its explanatory commentary require historic injury to protected wildlife.

50 F.3d at 784 (emphasis in original).

Pacific Lumber also relies on a passage in *Sweet Home* in which the Court stated:

> Respondents' argument that the Government lacks any incentive to purchaseland under § 5 when it can simply prohibit takings under § 9 ignores the practical considerations that attend enforcement of the ESA. Purchasing habitat lands may well cost the Government less in many circumstances than pursuing civil or criminal penalties. In addition, the § 5 procedure allows for protection of habitat before the seller's activity has harmed any endangered animal, *whereas the Government cannot enforce the § 9 prohibition until an animal has actually been killed or injured.*

Sweet Home, __ U.S. at __, 115 S.Ct. at 2415 (emphasis added). Relying on this language, Pacific Lumber argues no injunction may issue until the death or injury of a protected species has actually occurred. We reject this argument.

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The facts of *Sweet Home* did not require the Court to address the question whether a showing of a threat of future harm is sufficient for an injunction. The case involved a facial challenge to the Secretary's definition of "harm." To the extent the *Sweet Home* opinion may be read to say past injury is required before an injunction may issue, such a statement is dictum.

Furthermore, the remainder of the *Sweet Home* opinion indicates that the Court did not intend to alter case law which held that an injunction may issue upon a showing of a threat of imminent harm. The Court explicitly found the Secretary's interpretation of the law reasonable. *Id.* at __, 115 S.Ct. at 2416. The Court paraphrased the Secretary's view that "the § 9 prohibition on takings, which Congress defined to include 'harm,' places on respondents a duty to avoid harm that habitat alteration will cause the birds unless respondents first obtain a permit." *Id.* at __, 115 S.Ct. at 2412 (emphasis added). By finding this view reasonable, the Court approved an interpretation of the ESA which prevents activity that will cause future harm. This was our interpretation in *Rosboro*.

In a more recent opinion, we cited both *Rosboro* and *Sweet Home* as support for the proposition that the citizen suit provision of the ESA "allows private plaintiffs . . . to enjoin private activities that are reasonably certain to harm a protected species." *Sierra Club v. Babbitt*, 65 F.3d 1502, 1512 (9th Cir.1995); *see also Loggerhead Turtle v. County Council of Volusia*, 896 F.Supp. 1170, 1179-80 (D.Fla.1995).

We conclude that the Supreme Court's decision in *Sweet Home* does not overrule *Rosboro*. A reasonably certain threat of imminent harm to a protected species is sufficient for issuance

of an injunction under section 9 of the ESA. *Rosboro*, 50 F.3d at 786; *Burlington North. R.R.*, 23 F.3d at 1511; *American Bald Eagle v. Bhatti*, 9 F.3d 163, 166 (1st Cir.1993).

C. Sufficiency of the Evidence

Pacific Lumber bases its challenge to the sufficiency of the evidence on several arguments. Its principal argument is that the evidence fails to meet the standard for reliable scientific evidence under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

1. The *Daubert* challenge.

In *Daubert*, the Supreme Court made clear that the Federal Rules of Evidence, specifically Rule 702, not *Frye v. United States*, 293 F. 1013 (D.C.Cir.1923), governs the admissibility of expert scientific evidence. 509 U.S. at __, 113 S.Ct. at 2799. The appropriate test of admissibility depends on the trial court's determination of a reliable foundation and relevance to the issues at trial. "Pertinent evidence based on scientifically valid principles will satisfy those demands." *Id.*

Daubert supplies a test for *admissibility* of scientific evidence. 509 U.S. at __, 113 S.Ct. at 2791 ("In this case we are called upon to determine the standard for admitting expert scientific testimony in a federal trial."). Pacific Lumber's *Daubert* challenge, however, is raised in the context of an insufficiency-of-the-evidence argument, not a challenge to the admission of the evidence. In Pacific Lumber's view, whether admitted at trial or not, EPIC's scientific evidence of impaired breeding of marbled murrelets fails the *Daubert* test because it is irrelevant and unreliable, and therefore is insufficient to support the district court's judgment.

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Although we recognize that evidence which is unreliable is necessarily insufficient, the appropriate time to raise evidentiary challenges is at trial. By failing to object to evidence at trial and request a ruling on such an objection, a party waives the right to raise admissibility issues on appeal. *Fenton v. Freedman*, 748 F.2d 1358, 1360 (9th Cir. 1984); *Dale Benz, Inc., Contractors v. American Cas. Co.*, 305 F.2d 641, 643 (9th Cir. 1962). The rationale behind this rule applies to Pacific Lumber's *Daubert* argument in this appeal, even though it couches its argument in terms of insufficiency of the evidence.

Pacific Lumber raised its *Daubert* objections in the district court in its pretrial "Objections to Evidence," filed June 27, 1994. The district court, however, did not rule on these objections and Pacific Lumber did not request a ruling. This is clear from Pacific Lumber's failure to state in its briefs on appeal where in the record it requested, or the trial court made, any ruling on the *Daubert* objections. *See*, Circuit Rule 28-2.5. Nor has Pacific Lumber provided as part of the excerpt of record in this appeal the "portion of the reporter's transcript recording any discussion by court or counsel involving" the challenge to admissibility of EPIC's scientific evidence. *See*, Circuit Rule 30-1.3(a)(vii).

By failing to request a ruling in the district court on its *Daubert* objections, Pacific Lumber evaded that court's decision of the issue, and denied EPIC the opportunity to lay a better foundation for the evidence. *See Fenton*, 748 F.2d at 1360. In this circumstance, permitting Pacific Lumber to challenge on appeal the reliability of EPIC's scientific evidence under *Daubert*, in the guise of an insufficiency-of-the-evidence argument, would give Pacific Lumber an unfair advantage. Pacific Lumber would be "free to gamble on a favorable

judgment before the trial court, knowing that [it could] seek reversal on appeal because of [its] failure to obtain a ruling on [its] objections." *Id.* We will not permit this.

We conclude Pacific Lumber waived its *Daubert* objections to EPIC's scientific evidence of impaired breeding by failing to request a ruling on the admissibility of the evidence in the district court.

2. Whether impaired breeding is "harm."

Pacific Lumber next argues that even if EPIC's scientific evidence of impaired breeding is considered, impaired breeding is not "harm" to an actual bird, but rather is harm to the population and therefore is legally insufficient to qualify as "harm" under the ESA, 16 U.S.C. § 1532(19). Pacific Lumber relies on *Sweet Home* for this argument.

Neither the majority nor the concurring opinion in *Sweet Home* provides any support for Pacific Lumber's argument. The majority opinion did not address whether impaired breeding amounts to harm to the species impaired or whether it harms only the general population. The majority avoided the question. *See* __ U.S. at __ n. 13, 115 S.Ct. at 2414 n. 13. The dissent in *Sweet Home* believed the Secretary's "harm" regulation was too broad because it included impaired breeding as harm when, in the dissent's view, impaired breeding was harm to a population of animals and not to an actual animal as required by statute. *Id.* at __, 115 S.Ct. at 2430 (Scalia, J., dissenting).

In her concurrence, Justice O'Connor disagreed with the dissent, arguing it was difficult to dismiss the notion that

"significant impairment of breeding injures living creatures." *Id.* at __, 115 S.Ct. at 2419 (O'Connor, J., concurring). Noting that the dictionary definition of "injure" includes "impair," Justice O'Connor stated that at least complete impairment of breeding would be injury to the living creature so impaired. The concurrence concluded:

> In any event, even if impairing an animal's ability to breed were not, in and of itself an injury to that animal, interference with breeding can cause an animal to suffer other, perhaps more obvious, kinds of injury.

Id. (emphasis in original).

Most importantly, however, the majority in *Sweet Home* upheld the facial validity of the Secretary's "harm" regulation. That regulation defines harm to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. § 17.3. Thus, under *Sweet Home*, a habitat modification which significantly impairs the breeding and sheltering of a protected species amounts to "harm" under the ESA. *Accord Rosboro*, 50 F.3d at 788. "Harm" under the ESA, therefore, includes the threat of future harm. *Id.* We next consider whether there was sufficient evidence of a threat of future harm.

3. Sufficiency of the evidence of future harm.

Evidence was presented in the district court that there were "approximately 100 detections of marbled murrelets at Owl

Creek, throughout the birds' breeding season, for a period of three consecutive years," including many instances of "occupied behavior." Evidence of occupied nesting behavior was also provided by the PSG Protocol. In addition, several experts testified to the probability of the murrelets' nesting in Owl Creek, and that implementation of Pacific Lumber's harvesting plan would likely harm marbled murrelets by impairing their breeding and increasing the likelihood of attack by predators on the adult murrelets as well as the young.

We conclude there was sufficient evidence to support the district court's findings. The district court did not clearly err in finding marbled murrelets were nesting in Owl Creek and that there was a reasonable certainty of imminent harm to them from Pacific Lumber's intended logging operation.[5]

III

CONCLUSION

In *Rosboro*, we held a reasonably certain threat of future harm is sufficient to support a permanent injunction under the ESA. *Rosboro*, 50 F.3d at 783. The Supreme Court's decision in *Sweet Home* does not affect the vitality of that holding. *Rosboro* remains good law.

Pacific Lumber's attack on the sufficiency of the evidence to support the district court's findings and judgment hinges

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5. We need not consider the sufficiency of the evidence to support the district court's finding that implementation of Pacific Lumber's THP-237 would "harass" the marbled murrelets. The disrict court's finding of "harm" under the ESA is sufficient to support its injunction without a finding of harassment.

largely upon its assertion that EPIC's scientific evidence of impaired breeding did not comply with the scientific reliability requirement of *Daubert*. Pacific Lumber is precluded from raising this argument on appeal, because it failed to request a ruling on its *Daubert* objections to admissibility of the evidence in the district court. The evidence is sufficient to support the district court's findings and judgment.

AFFIRMED.

APPENDIX C — OPINION OF THE UNITED STATES DISTRICT COURT, NORTHERN DISTRICT OF CALIFORNIA DATED FEBRUARY 27, 1995

MARBLED MURRELET (BRACHYRAMPHUS MARMORATUS), Environmental Protection Information Center, Inc., Plaintiffs,

v.

PACIFIC LUMBER COMPANY, Defendant.

No. C-93-1400-LCB.

United States District Court,
N.D. California.

Feb. 27, 1995.

* * *

Macon Cowles, Susan R. O'Neill, Boulder, CO, Charles S. Crandall, San Diego, CA, Mark P. Harris, Arcata, CA, William A. Rossbach, Missoula, MT, for plaintiffs.

Alson R. Kemp, Jr., Mark H. Penskar, Andrea L. Gross, San Francisco, CA, Frank Shaw Bacik, Ukiah, CA, for defendant.

MEMORANDUM ORDER INCLUDING
FINDINGS OF FACT AND CONCLUSIONS OF LAW

BECHTLE, District Judge.

I. *INTRODUCTION*

Appendix C

Plaintiffs, Environmental Protection Information Center, Inc. ("EPIC") and the marbled murrelet (Brachyramphus marmoratus), a federally-protected species, have brought suit against defendant Pacific Lumber Company ("Pacific Lumber") to permanently enjoin the implementation of Timber Harvest 1-90-237 HUM ("TH-237"), under which Pacific Lumber proposes to harvest a 137 acre portion of the Owl Creek forest, a 440 acre stand of old-growth coastal coniferous forest ("old-growth") located in Humboldt County, California. EPIC contends that Owl Creek is part of one of only three marbled murrelet nesting habitats remaining in California, and that Pacific Lumber's harvesting of 137 acres of this area will result in a "taking" of the species in violation of § 9(a)(1)(B) of the Endangered Species Act of 1973 ("ESA"), 16 U.S.C. § 1538(a)(1)(B).

On February 2, 1994, U.S. District Judge Fern M. Smith issued a preliminary injunction barring Pacific Lumber from engaging in any logging activities in THP-237 until further order of this court. *Marbled Murrelet v. Babbitt*, No. C-93-1400-FMS, slip op. at 12 (N.D.Cal. Feb. 2, 1994).[1] The court held an eight day non-jury trial between August 15, 1994 and September 8, 1994 to determine whether the marbled murrelet occupies the proposed timber harvest area of THP-237, and, if so, whether Pacific Lumber's implementation of THP-237 will result in a "take" of the species in violation of the ESA. Based on the evidence of record, and the court's findings of fact and conclusions of law as set forth below, the court finds that the marbled murrelet does, in fact, occupy the proposed timber harvest area, and that Pacific Lumber's implementation of THP-237 will sufficiently "harm" and "harass" the marbled

1. This court, on inter-circuit assignment, now presides over the case. The court incorporates Judge Smith's preliminary injunction by reference.

murrelet to constitute a "take" of the species in violation of 16 U.S.C. § 1538(a)(1)(B).[2] Pacific Lumber is hereby permanently enjoined from implementing THP-237.

I. *FINDINGS OF FACT*

A. *The Parties, Jurisdiction, Venue and Standing*

1. EPIC is an "environmental watchdog organization devoted to the protection of threatened and endangered species in the Northern California forest ecosystem." *Marbled Murrelet v. Babbitt,* No. C-93-1400-FMS, slip op. at 1 (N.D.Cal. Sept. 1, 1993). EPIC's 300 members live and work in the redwood region of Northern California. (Lanham, Tr. 8/15/94 at 42, 46.) Many of EPIC's members are committed to protecting the biodiversity of the redwood region. (*Id.* at 55.) In this role, they monitor areas where they believe marbled

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2. The court's ruling follows the Ninth Circuit's holding in *Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106, 1108 (9th Cir. 1988), that a permissible interpretation of the word "harm" in the ESA's definition of the word "take" includes "significant habitat modification or degradation." *See* 50 C.F.R. § 17.3 (1987). *But cf. Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 17 F.3d 1463 (D.C.Cir. 1994) (Congress did not intend habitat modification to be included in definition of "harm"), *cert. granted*, __ U.S. __, 115 S.Ct. 714, 130 L.Ed.2d 621 (1995). Pacific Lumber contends that the D.C. Circuit's holding in *Sweet Home* precludes this court from finding that the harvesting of critical marbled murrelet breeding habitat in Owl Creek, which is privately-owned, would constitute a "take" in violation of the ESA. Pacific Lumber is incorrect. At this time, *Palila*, not *Sweet Home*, is the controlling law in the Ninth Circuit "until and unless changed by the Supreme Court or by the circuit itself." *See Seattle Audubon Society v. Lyons*, 871 F.Supp. 1291, 1313 (D.Wash.1994). *Accord., National Wildlife Federation v. Burlington Northern*, 23 F.3d 1508, 1512 (1994) (reaffirming holding in *Palila*).

murrelets are nesting, and attempt to determine what impact logging these areas will have on the marbled murrelet and other old-growth dependent species. (*Id.*) This court has already found that EPIC's members will suffer an "injury in fact" if Pacific Lumber's implementation of THP-237 results in a "take" of the marbled murrelet in violation of the ESA. *Marbled Murrelet v. Babbitt*, No. C-93-1400-FMS, slip op. at 5-9 (N.D.Cal. Sept. 1, 1993) (*citing Lujan v. Defenders of Wildlife*, 504 U.S. 555, 573 n. 8, 112 S.Ct. 2130, 2143 n. 8, 119 L.Ed.2d 351 (1992)). Thus, EPIC has standing to sue under the citizen suit provision of the ESA, 16 U.S.C. § 1540(g)(1)(A). *Id.*

2. The marbled murrelet is a rare seabird which nests primarily in old-growth coastal coniferous forests between southeast Alaska and Santa Cruz, California. (Pls.' Ex. 272 at 2.) Effective March 12, 1992, the marbled murrelet was listed as an "endangered species" under the California Endangered Species Act ("CESA"), 14 Cal.Fish & Game Code § 1750, *et seq.*[3] *See* 14 C.C.R. § 670.5. Effective September 28, 1992, the marbled murrelet was listed as a "threatened species" under the federal ESA within its range in California, Oregon and Washington.[4] 57 Fed.Reg. 45328 (Oct. 1, 1992); *see also* 50

3. The CESA protects endangered species within their habitat in California. The CESA, however, differs from the ESA in several respects. it does not provide the same protection as the ESA because it does not include the federal definitions of "harm" or "harass" in its definition of the term "take." (Moore, Tr. 8/17/94 at 148.) In fact, unlike the ESA, the CESA is neither interpreted nor explained by any regulations which define key terms used in its provisions. (Pls.' Ex. 334 at III-2.) Moreover, the CESA makes no provision for designating or protecting critical habitat for a species, nor does it expressly include habitat modification as a type of prohibited taking. (*Id.*)

4. Under the ESA, the term "threatened species" means any species which is likely to become in danger of extinction within the foreseeable future through all or a significant portion of its range. 16 U.S.C. § 1532.

C.F.R. § 17.11 (1993). Thus, as a protected species under the ESA, the marbled murrelet has standing to sue "in its own right." *Marbled Murrelet v. Babbit*, No. C-93-1400-FMS, slip op. at 9, n. 4 (N.D.Cal. Sept. 1, 1993) (*quoting Palila*, 852 F.2d at 1107.).

3. Pacific Lumber is a logging company with a base of operations in Scotia, California. (Herman, Tr. 9/6/94 at 165.) Pacific Lumber owns and proposes to harvest the portion of the Owl Creek forest covered by THP-237. (Def's. Exs. 816 and 818.)

4. The court has subject matter jurisdiction pursuant to 28 U.S.C. § 1331 and 16 U.S.C. §§ 1540(c) and 1540(g)(1).

5. Venue is proper pursuant to 28 U.S.C. § 1391(b).

B. *The Marbled Murrelet*

6. The marbled murrelet is a small seabird in the family of alcids (which includes auks, murres and puffins).[5] (Carter, Tr. 8/15/94 at 58-60; Pls.' Ex. 251 at 1, 7-8.) The marbled murrelet is approximately nine inches in length, it has a short neck and tail, small wings, and a heavy compact body. (Pls.' Ex. 251 at 1, 7-8; Nelson, Tr. 8/16/94 at 53.) Both adult murrelets and their chicks have "cryptic plumage;" during the breeding season, the adult's plumage is dark brown and gray with black bars above and a heavily mottled light brown below. (Pls.' Ex. 251 at 8; Nelson, Tr. 8/16/94 at 22, 53; Carter, Tr. 8/15/94 at 66.)

7. Like other alcids, the marbled murrelet spends most of

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5. Alcids are wing-propelled diving seabirds that subsist on small ocean fish. (Carter, Tr. 8/15/94 at 58-59; Nelson, Tr. 8/16/94 at 18.)

its time at sea feeding on small fish. (Pls.' Ex. 251 at 7-8.) The marbled murrelet, however, is the only member of the alcid family that nests in trees. (*Id.* at 1; Carter, Tr. 8/15/94 at 60.) Within the contiguous United States, the marbled murrelet nests exclusively in old-growth coniferous forests within 30 miles of the northern Pacific coastline.[6] (Carter, Tr. 8/15/94 at 60-61, 72; Burkett, Tr. 8/18/94 at 185, 224-26; Pls.' Exs. 223, 224, 251, 270, 304 and 329.) These old-growth forests contain centuries old redwood and Douglas fir trees which are hundreds of feet tall, with large trunks that can range from two feet to ten feet in diameter. (Fox, Tr. 9/7/94 at 229-30; Herman, Tr. 9/6/94 at 112, 120.) Marbled murrelet nest trees generally have a large trunk (more than 32 inches in diameter) and large limb structures that are used as a nest platform. (Nelson, Tr. 8/16/94 at 53.) Typically, the marbled murrelet chooses a limb at least 150 feet above the forest floor. (*Id.* at 55.)

8. Marbled murrelets do not breed until they are several years old, and adults do not necessarily breed every year. (Pls.' Ex. 251 at 1, 9-10.) Additionally, the marbled murrelet does not "build" a nest; rather, the female lays a single egg each year in a natural depression on a large horizontal, moss-covered limb of an old-growth redwood or Douglas fir tree. (*Id.*; Nelson, Tr. 8/16/94 at 21-22; Moore, Tr. 8/17/94 at 156.) After an egg is laid, the male and female incubate the egg, trading off duties on a daily basis. One murrelet remains on the nest while the other is

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6. The marbled murrelets' nesting habits were a mystery until relatively recently. (Nelson, Tr. 8/16/94 at 15; Carter, Tr. 8/15/94 at 58, 67-68.) The first marbled murrelet nest was discovered in 1974. (Nelson, Tr. 8/16/94 at 13, 53; Carter, Tr. 8/15/94 at 66-68.) A second nest was not found until 1989. (Nelson, Tr. 8/16/94 at 28.) Since that time, only 71 nests have been discovered in the Pacific Northwest, of which only nine were in California. (*Id.* at 25, 90.)

at sea, and the birds exchange places at dawn. (Nelson, Tr. 8/16/94 at 23-25.)

9. Marbled murrelets nest solitarily, rather than in colonies. (*Id.* at 26; Carter, Tr. 8/15/94 at 66; Burkett, Tr. 8/18/94 at 264.) While a forest where marbled murrelets are nesting usually contains more than one such nest, only a single pair of marbled murrelets will nest in any one tree within a particular forest stand. (Nelson, Tr. 8/16/94 at 27, 52.) In addition, marbled murrelets are known to have high "site fidelity;" *i.e*, the species returns each year to the same forest "stand."[7] (*Id.* at 70-71; Carter, Tr. 8/15/94 at 151; Speich, Tr. 9/8/94 at 63-64.)

10. The marbled murrelet is highly susceptible to predation during its nesting season, which lasts from approximately mid-April until September. (Moore, Tr. 8/17/94 at 155; Pls.' Ex. 251 at 9, 12-13.) Of the marbled murrelet nests which have been discovered, few have achieved nesting success. (Carter, Tr. 8/15/94 at 86; Nelson, Tr. 8/16/94 at 26.) That is, the chick hatched in the nest rarely survives to become a fully-fledged bird. Death of marbled murrelet chicks before fledgling results primarily from attacks by avian predators. (Nelson, Tr. 8/16/94 at 26.) Predators such as ravens, hawks and stellar jays, known as "corvids," are generally considered to be a significant threat to the marbled murrelet. (*Id.* at 26-27; Burkett, Tr. 8/18/94 at 263-64; Moore, Tr. 8/17/94 at 178-79; Speich, Tr. 9/8/94 at 76.) Some experts believe that, even under ideal circumstances, more than 50 percent of marbled murrelet nests are subject to nest predation. (Moore, Tr. 8/17/94 at 180.)

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7. A "stand" is a contiguous grouping of trees that exhibit characteristics suitable for marbled murrelet nesting. (Moore, Tr. 8/17/94 at 158.)

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11. Because the marbled murrelet is highly susceptible to predation during the nesting season, the bird has developed very secretive behavior to protect itself and its young. (Carter, Tr. 8/15/94 at 62-63, 65-66.) The marbled murrelet prefers to nest in areas where the foliage is thick enough to protect it from being spotted by avian predators. (Moore, Tr. 8/17/94 at 155.) While on land, the marbled murrelet is nocturnal; it flies primarily in darkness or at very low light levels, at dawn and dusk. (Carter, Tr. 8/15/94 at 66; Nelson, Tr. 8/16/94 at 53.) Additionally, the marbled murrelet flies very fast through the air, at speeds up to sixty miles per hour. (Nelson, Tr. 8/16/94 at 18.)

12. Because the marbled murrelet depends on stealth for its existence, it is "very, very difficult to study and find." (Nelson, Tr. 8/16/94 at 52-53.) In the words of one of Pacific Lumber's expert witnesses, Steven Kerns ("Kerns") "the murrelet is a bird that is hard to detect at any given bird sites. It is a secretive bird." (Kerns, Tr. 9/7/94 at 22.) "The murrelet basically makes its living by staying out of everything's way." (Moore, Tr. 8/17/94 at 155.)

13. The historical population of the marbled murrelet in California is believed to have been about 60,000. (Pls.' Ex. 251 at 2, 16-17.) Currently, it is believed that approximately 2000 to 5000 marbled murrelets remain in California. (Pls.' Ex. 248 at 1; Speich, Tr. 9/8/94 at 80.) In 1991, the California Department of Fish and Game ("DFG") estimated that the total breeding population of the marbled murrelet in California was approximately 1650 to 2000 birds.(Pls.' Ex. 251 at 2, 17-19.)

14. The existing population of the marbled murrelet in the Pacific Northwest is known to be declining rapidly. (Carter, Tr.

8/15/94 at 86-66; Pls., Exs. 248 and 251.) The two primary reasons for this decline are the bird's very low annual reproductive potential (1 chick per successful breeding pair), which is exacerbated by nest failure due to predation, and the loss of the vast majority of the marbled murrelet's old-growth nesting habitat. (Pls.' Ex. 248 at 1; Carter, Tr. 8/15/94 at 86-90; Burkett, Tr. 8/18/94 at 173; Moore, Tr. 8/17/94 at 105-06.) In California, more than 96 percent of the marbled murrelets' old-growth nesting habitat has been lost to commercial logging during the past 150 years. (Pls.' Exs. 223 and 224; Burkett, Tr. 8/18/94 at 227; Fox, Tr. 9/7/94 at 223; Moore, Tr. 8/17/94 at 105-06.) Pacific Lumber estimates that a total of only 137,000 acres of old-growth remain in the State of California. (Pls.' Ex. 334 at IV-5.) Pacific Lumber owns approximately four percent of this total. (*Id.*)

15. The remaining population of marbled murrelets in California is separated into three clusters, which are closely associated with the three remaining blocks of old-growth in the state. (Pls.' Ex. 251 at 17.) The largest remaining cluster of marbled murrelets in California is located in Del Norte and northern Humboldt Counties in the vicinity of Jedediah Smith State Park and Redwood National Park. *(Id.)* The next largest cluster is located in southern San Mateo and northern Santa Cruz Counties in the vicinity of Portola State Park and Big Basin State Park. *(Id.)* The smallest remaining cluster is located in "an isolated locality" in south central Humboldt County in the vicinity of Grizzly Creek State Park, Humboldt Redwoods State Park and Owl Creek.[8] (*Id.*) The DFG believes that the

8. In an attempt to minimize the significance of its logging operations in southern Humboldt County, Pacific Lumber has estimated that only 71 marbled murrelets inhabit the coastal nearshore waters between Eureka and Pillar Point, California during the summer breeding season. (Pls.' Ex. 334, Table V-2; *see also* Carter, Tr. 8/15/94 at 85-86.)

geographic separation between these three clusters may be substantial enough to prevent movement of individual marbled murrelets between populations.[9] (*Id.*)

16. After the logging of an old-growth forest, the original "cathedral-like" columns of trees do not regenerate for a period of two hundred years. (Fox, Tr. 9/7/94 at 226.) Because of the precarious state of the marbled murrelet population, the destruction of any significant amount of marbled murrelet habitat will result in a high probability that the Northern California population will become extinct. (Carter, Tr. 8/15/94 at 95.) The DFG's June 1991 "Status Review of the Marbled Murrelet" states "[all] remaining old-growth coastal coniferous forest supporting Marbled Murrelets must be protected from any further modification." (Pls.' Ex. 251 at 5, ¶4.) Destruction of any additional occupied stands would, therefore, retard the marbled murrelets' recovery. (Carter, Tr. 8/15/94 at 98-101.) As Pacific Lumber's expert witness Steven Speich ("Speich") asserted, "the whole reason for being a marbled murrelet is to reproduce successfully." (Speich, Tr. 9/8/94 at 66.) Successful nesting is critical to the survival of the species, because most of the population is unable to successfully raise young in the nest. (Carter, Tr. 8/15/94 at 173-74.) Unless the marbled murrelet population is kept at a sustainable level, without further loss of habitat, it is very likely that the marbled murrelet will slip toward extinction. (*Id.* at 81-82, 86, 91-96, 174; Pls.' Exs. 270 and 271.)

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9. According to the DFG's June 1991 "Status Review of the Marbled Murrelat," the remaining marbled murrelet population in California is so fragile that, unless it is allowed to regenerate, the entire population could be eliminated by a single off-shore catastrophic event, such as an oil spill, from the effects of gill-netting, or from the loss of the murrelets' principal food source during an El Nino-type oceanic event. (Pls.' Ex. 251 at 3.)

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17. In connection with the marbled murrelets' listing as a "threatened species" under the ESA, the United States Fish and Wildlife Service ("USF & WS") appointed a Marbled Murrelet Recovery Team ("MMRT") to review the conservation needs of the species in California, Oregon and Washington. (Pls.' Ex. 248 at 1.) In a status report dated April 14, 1994, the MMRT concluded that "any reduction in occupied nesting habitat for the Marbled Murrelet would hamper efforts to stabilize the population and eventually recover the species." (*Id.* at 2.) The MMRT recommended that the USF & WS designate all suitable marbled murrelet nesting habitat on Pacific Lumber's lands in Humboldt County, California as "critical habitat" for the marbled murrelet.[10] (*Id.* at 2-3.) The MMRT concluded that "[t]hese areas are the only available nesting habitat for the population of Marbled Murrelets that occur at-sea in the area of Cape Mendocino." (*Id.* at 3.)

C. Owl Creek and THP-237

18. The Owl Creek forest is an isolated 440 acre stand of contiguous old-growth redwood and Douglas fir trees located

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10. Under the ESA, "Critical habitat" is defined as "the specific areas within the geographical area occupied by the species . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection[.]" 16 U.S.C. § 1532(5)(A); 50 C.F.R. § 424.02(d). When the marbled murrelet was listed as a "threatened species" on September 28, 1992, the USF & WS lacked sufficient information to perform the required analyses of the environmental and economic impact of a critical habitat designation for the species. 57 Fed.Reg. 45328, 45336 (Oct. 1, 1992). At the time, the USF & WS stated that it needed to "carefully study all known occupied sites on other suitable areas, in order to determine which physical or biological features are in fact essential to the conservation of the murrelet." (*Id.*) The MMRT is part of this effort.

22 miles inland from the Pacific coast in south central Humboldt County. (Pls.' Ex. 329; Kerns, Tr. 9/7/94 at 57; Def's. Exs. 812 and 813.) The Owl Creek forest is completely surrounded by previously harvested clear cut and second-growth forests for four to five miles in all directions. (Pls.' Ex. 329; Moore, Tr. 8/17/94 at 105-06; Burkett, Tr. 8/18/94 at 265.) The nearest stand of old-growth to Owl Creek is Allen Creek, which is located some four miles to the west. (Moore, Tr. 8/17/94 at 105-06.)

19. THP-237 is a 237 acre, kidney-shaped segment of the Owl Creek forest. (Def's. Ex. 816.) Within THP-237, the forest consists of old-growth redwood and Douglas fir trees which are between two and eight feet in diameter at breast height ("d.b.h."), in excess of 150 feet tall, with canopy closure ranging from 50 to 100 percent. (Pls.' Exs. 292-M, 329, 334, 335, 336 and 337; Def's. Exs. 812 and 813.) The old-growth redwood and Douglas fir trees in THP-237 range in age from 150 to more than 500 years old. (Herman, Tr. 9/6/94 at 109.)

20. Because of the age and size of its old-growth redwood and Douglas fir trees, the high degree of canopy closure, the existence of suitable nest platforms, and its proximity to the ocean, the Owl Creek stand, including THP-237, is suitable nesting habitat for the marbled murrelet. (Pls.' Ex. 248 at 2-3; Pls.' Ex. 298; Moore, Tr. 8/17/94 at 158; Nelson, Tr. 8/16/94 at 55; Burkett, Tr. 8/18/94 at 185.) In fact, Pacific Lumber has ranked THP-237 as some of the most suitable and important nesting habitat for the marbled murrelet on the 196,000 acres of land owned by the company in Humboldt County, California.[11] (Pls.' Exs. 329 and 334.)

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11. The Secretary of the Interior may permit the taking of a protected species "if such taking is incidental to, and not the purpose of, the carrying (Cont'd)

21. On April 11, 1990, Pacific Lumber submitted THP-237 to the California Department of Forestry ("CDF") for approval.[12] (Def's. Ex. 816.) Initially, the CDF refused to approve Pacific Lumber's proposal for THP-237 because the proposed harvest plan did not provide sufficient mitigation measures to ensure that a "take" of the marbled murrelet would not occur in violation of the CESA.[13] (Def's. Ex. 817.)

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out of an otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B). Such takings cannot occur, however, until an applicant submits, and receives approval of, a habitat conservation plan as outlined in 16 U.S.C. § 1539(a)(2). On October 11, 1993, Pacific Lumber submitted a draft habitat conservation plan ("HCP") for the preservation of the marbled murrelet on its property in Humboldt County to the DFG and USF & WS in connection with the company's application for an "incidental take" permit for the marbled murrelet under § 1539(a)(2). (Pls.' Ex. 334.) Pacific Lumber's HCP contains a numerical ranking system that the company devised "as a means to quantitatively evaluate the potential suitability and importance of areas of timber [on Pacific Lumber property) for nesting marbled murrelets." (*Id.* at VII-2.) The suitability of Pacific Lumber's property as nesting habitat for the marbled murrelet is ranked on a scale from 0 to 5, with 5 being the most suitable and important habitat based on the size of the trees in the stand and the density of canopy closure. (*Id.*) Pacific Lumber has developed a map of its property applying the suitability rankings in the HCP. (Pls.' Ex. 329.) On this map, the proposed harvest area of THP-237 is ranked 5, while the proposed retention area is ranked 4.*(Id.)*

12. An approved timber harvest plan is required by the State of California as a prerequisite to the conduct of commercial timber generations within the state. (Miller, Tr. 8/16/94 at 152.)

13. When THP-237 was originally filed with the CDF, the marbled murrelet was not yet protected by either state or federal law. However, the California Fish and Game Commission had already received a petition requesting state listing of the marbled murrelet as a threatened species under CESA, and the DFG was in the process of conducting a 12 month review of the species' status in accordance with § 2074.6 of CESA. (Pls.' Ex. 251 at 7.)

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22. On March 13, 1992, the California Board of Forestry overruled the CDF and approved THP-237. (*Id.*) The Board of Forestry's approval, however, was made contingent upon Pacific Lumber's conducting marbled murrelet surveys in Owl Creek in compliance with the Pacific Seabird Group's "Methods for Surveying Marbled Murrelets at Inland Forested Sites" ("PSG Protocol"), and Pacific Lumber's sharing of its survey results with the DFG to ensure that no "take" of the marbled murrelet would occur. (*Id.* at 3-4.) According to the Board of Forestry's Findings for Approval of THP-237, "[o]perations may not commence until the surveys made [as] a condition of this approval are completed and the information [is] provide[d] to CDF and DFG." *(Id. at* 10.)

23. After conversations with representatives of the CDF and DFG at THP-237 in August 1992, Pacific Lumber agreed to amend THP-237 to set aside certain mitigation zones for the marbled murrelet, and to refrain from harvesting THP-237 during the marbled murrelets' nesting season. (Def's. Ex. 832.)

24. On November 25, 1992, Pacific Lumber recorded a "minor amendment" to THP-237 which set aside three areas of THP-237 from logging for long as the marbled murrelet continues to be listed as a threatened or endangered species under the state or federal ESA, or until a marbled murrelet management plan, such as a habitat conservation plan under 16 U.S.C. § 1539(a)(2), is approved for all of Pacific Lumber's lands. (Def's. Ex. 833; Herman, Tr. 9/6/94 at 152; Speich, Tr. 9/8/94 at 145.) The amended THP-237 contains an 83 acre "retention area" in the southwestern portion of the stand, which will not be harvested during the specified period of time; 23 acres of "marbled murrelet mitigation zones," which will not be cut at all; and 137 acres designated as the "harvest area," of

which 40 to 60 percent of the trees will be harvested immediately.[14] (Herman, Tr. 9/6/94 at 118-19; Def's. Ex. 818.)

25. Pacific Lumber has proposed a "modified selection cut" for THP-237. (Moore, Tr. 8/17/94 at 166-67.) This is not an outright clear cut, but rather a two-step clear cut. (*Id.*) The initial cut will take the largest old-growth trees in the harvest area. (*Id.*) Within ten years, Pacific Lumber will re-enter the stand and harvest the remaining old-growth. (*Id.*; Pls.' Ex. 334 at II-3.)

D. The PSG Protocol

26. The Pacific Seabird Group ("PSG") is a professional scientific organization which has taken the lead role in coordinating and promoting research on marbled murrelets, and in providing researchers and land managers with standardized techniques to determine marbled murrelet use of inland forested sites. (Pls.' Ex. 272 at 4.) In 1990, the PSG developed its protocol for studying marbled murrelets to assist wildlife biologists by providing guidance to: (a) determine the presence or probable absence of marbled murrelets in a forested stand; (b) help evaluate how marbled murrelets are using these stands; (e) identify the geographic distribution of the marbled murrelet; and (d) provide consistency for the long-term monitoring of the murrelets' activity levels.[15] (Pls.' Ex. 277 at

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14. Defendant's Exhibit 818 is a map of THP-23, as amended.

15. The PSG Protocol is the generally accepted scientific methodology employed to determine whether marbled murrelets are located in, or making use of, a particular inland forested site for nesting purposes. (Nelson, Tr. 8/16/94 at 27-28.) The PSG Protocol has been adopted for use by the United States Forest Service, the United States Bureau of Land Management, and (Cont'd)

2.) The PSG Protocol is based on the best available information on marbled murrelet biology. (Id. at 1.) The protocol is updated annually as new information about the marbled murrelet becomes available.[16](*Id.* at 1-2.)

27. The PSG Protocol was not designed specifically to find murrelet nests, and the failure to find nests in an area does not rule out the probability that marbled murrelets are nesting within a stand.[17] (Nelson, Tr. 8/16/94 at 54-55.) Instead, the

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the state fish and wildlife agencies of Washington, Oregon and California. (*Id.* at 29, 32-34; Pls's Exs. 272, 273, 274 and 277.) In addition, on March 5, 1992, the California Board of Forestry adopted the PSG Protocol for use by CDF and DFG to determine whether a proposed timber harvest plan will result in a "take" of a marbled murrelet where there is evidence of an active marbled murrelet site in or adjacent to the THP area, or where there is evidence of a potential impact to a marbled murrelet from the proposed logging operations. 14 C.C.R. §§ 919.11 and 1036.1. According to Ken Moore ("Moore"), a wildlife biologist with the California DFG, the DFG believes that the PSG Protocol "is the best thing out there that anybody has been able to produce that will give the highest probability to find marbled murrelets in any given inland site."(Moore, Tr. 8/17/94 at 135.) Given the PSG Protocol's nearly universal acceptance by the scientific community and public agencies charged with enforcing the ESA, the court finds that the PSG Protocol fulfills the requirements set forth by the Supreme Court in*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, __ U.S. __, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). *See also Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311 (9th Cir.1995).

16. The court will refer to the PSG's 1991, 1992, 1993 and 1994 protocols collectively as the "PSG Protocol." Where specific references to a particular protocol are necessary, the court will include the year of the protocol.

17. In fact, because marbled murrelet nests are so difficult to find, their nests have been found in only a small percentage of the forests classified as "occupied" by the PSG Protocol. (Nelson, Tr. 8/16/94 at 54.)

PSG Protocol classifies certain observed behaviors to determine the "presence" of marbled murrelets in a stand of "potential habitat," or to determine whether a particular stand is "occupied" by marbled murrelets.[18](Pls.' Ex. 277 at 2.)

28. The unit of measure under the PSG Protocol is the "detection" of single bird or flock. (*Id.* at 4.) The PSG Protocol defines a "detection" as "the sighting or hearing of one or more birds acting in a similar manner." (*Id.*) For example, if a surveyor sees or hears a single marbled murrelet circling overhead for three minutes, the protocol states that this should be recorded as a single detection. (*Id.*) If the surveyor loses contact with the bird and then hears a marbled murrelet calling from an unexpected direction, this should be recorded as two detections. (*Id.*) When a flock of birds is observed splitting into two groups, this should be recorded as one detection (*Id.*) If two flocks of birds are observed merging into one, this should be recorded as two detections. (*Id.*)

29. The PSG Protocol recommends that marbled murrelet "surveys" take place at regular intervals during the murrelets' breeding season, which generally occurs between mid-April and early August of each year.[19] (Nelson, Tr. 8/16/94 at 28; Pls.'

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18. The PSG Protocol defines "potential habitat" as: (1) mature and old-growth coniferous forests; and (2) younger coniferous forests that have deformations or structures suitable for nesting. (Pls.' Ex. 277 at 3.) The second part of this definition was added in 1994 after marbled murrelets were observed in younger coniferous forests (40-80 years old) in Washington and Oregon.*(Id.)*

19. The PSG Protocol defines a "survey" as "the process of determining marbled murrelet presence, absence, and occupancy of a stand by conducting survey visits." (Pls.' Ex. 277 at 3.) A "survey visit" is a single two hour survey completed by one surveyor at one survey station.*(Id.)*

Exs. 272, 273, 274 and 277.) According to the protocol, marbled murrelet detectability at inland sites in California appears to have a pre-peak level of moderate intensity during the spring (possibly during incubation), and a peak level of high activity during the last three weeks of July (possibly during the chick period). (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 5; Pls.' Ex. 274 at 5; Pls.' Ex. 277 at 5.) Detections tend to decrease markedly in August, presumably because the young marbled murrelets are undergoing a flightless molt at sea. (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 5; Pls.' Ex. 274 at 5; Pls.' Ex. 277 at 5.)

30. During a survey, individual surveyors are placed at various observation stations which are arranged in advance according to factors sets forth in the protocol. (Nelson, Tr. 8/16/94 at 29.) Since marbled murrelets are rarely seen by observers (75 to 95 percent of all detections in California are audible detections), the PSG Protocol recommends that surveyors should avoid placing survey stations near loud noise sources, such as creeks or busy roads. (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 6; Pls.' Ex. 277 at 15.) The PSG Protocol also recommends that surveys should not be conducted during rainy or windy conditions when it becomes difficult to hear the birds, or in heavy fog which limits visibility. (Pls.' Ex. 272 at 6; Pls.' Ex. 277 at 15.) However, surveys can be conducted on overcast days with light rain or moderate fog, because murrelets tend to call for longer periods and at higher rates during these conditions. (Pls.' Ex. 277 at 15.) Finally, the PSG Protocol recommends that surveys stations be located in areas that have an unobstructed view of the sky, and a maximum view of the canopy or stand being surveyed, because it is much easier to see the silhouette of a marbled murrelet flying directly overhead against the light-colored sky than it is to see the bird while looking down onto a dark background from the top of a ridge or

a high point. (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 6; Pls.' Ex. 274 at 6; Pls.' Ex. 277 at 6; Pls.' Ex. 291.)

31. Marbled murrelet surveys should begin 45 minutes before the official sunrise (as determined by the Nautical Almanac) and last until either 75 minutes after the official sunrise or for 15 minutes after the last detection, whichever is longer. (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 6; Pls.' Ex. 274 at 5; Pls.' Ex. 277 at 6; Nelson, Tr. 8/16/94 at 29.) According to the PSG Protocol, there must be a minimum of six and a maximum of 30 days between survey visits at a particular station. (Pls.' Ex. 272 at 6; Pls.' Ex. 273 at 7; Pls.' Ex. 274 at 5; Pls.' Ex. 277 at 5.) At least two surveys must be conducted at each survey site after July 1, with at least one of these surveys conducted during the peak nesting season. (Pls.' Ex. 277 at 5.)

32. Marbled murrelet surveys are conducted by surveyors certified through a training process approved by the State of California. (Nelson, Tr. 8/16/94 at 79.) Surveyors are taught to record each marbled murrelet detection, whether auditory or visual, on a standardized data sheet. (*Id.* at 30.) Surveyors are not required to be 100 percent certain that they have detected a marbled murrelet to note a detection; rather, they are trained to record data whenever they think they may have detected a marbled murrelet. (*Id.* at 72; Moore, Tr. 8/17/94 at 186.)

33. Auditory detections include marbled murrelet vocalizations, such as detections of the bird's distinctive "keer" calls, wing beats, and "jet" sounds. (Nelson, Tr. 8/16/94 at 73.) A single keer call is important and should be noted by the surveyor. (*Id.* at 134-35; Moore, Tr. 8/17/94 at 185-86.) The sound of wing beats is made when marbled murrelets are coming into a nest. (Nelson, Tr. 8/16/94 at 73.) "Jet" sounds,

which are made by a murrelet doing a "jet dive," or steep dive, have been made above known nest trees, and generally end below the tree canopy. (*Id.*)

34. According to the PSG Protocol, the "presence" of marbled murrelets can be determined upon the completion of four surveys per year for two consecutive years, where murrelets have been detected but instances of "occupied behavior," or observations of subcanopy behaviors in a stand, have not been observed.[20] (Pls.' Ex. 277 at 12.) The "absence" of marbled murrelets from a particular stand cannot be determined unless the number of surveys specified in the protocol are conducted for two consecutive years, and no birds are seen or heard. (Nelson, Tr. 8/16/94 at 40-41.)

35. Observations of "occupied behavior" indicate that marbled murrelets are probably using a stand for nesting purposes.[21] (*Id.* at 40.) The types of subcanopy behavior classified as "occupied behavior" include detections of marbled murrelets: (a) flying through, into, or out of the forest canopy; (b) landing in trees; (c) calling from a stationary location; and (d) circling below the canopy height.[22] (Pls." Ex.

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20. The 1993 PSG Protocol notes that "occupied behaviors" have been recorded in only three percent of the closed canopy sites that have been surveyed. (Pls.' Ex. 274 at 11-12.)

21. According to the PSG Protocol, "[s]ubcanopy behaviors in a stand, while not necessarily indicating nesting, means either nesting could occur at some time, or the stand could be used for purposes other than nesting that are essential to the life history of the bird." (Pls.' Ex. 277 at 13.)

22. "Canopy height" is defined as the height of the tallest trees that can be seen from a survey station. (Nelson, Tr. 8/16/94 at 48.)

277 at 13.) Circling above the canopy is also common at "occupied" sites, however, the 1994 PSG Protocol recommends following up a single observation of circling above the canopy with additional surveys. (*Id.*)

36. Because marbled murrelets are so difficult to detect, and because studies have shown that "occupied behavior" is associated with probable nesting, a single observation of "occupied behavior" under the PSG Protocol is enough to classify a suitable stand of marbled murrelet habitat as being "occupied." (Nelson, Tr. 8/16/94 at 52.) Thus, even if only one instance of "occupied behavior" is noted during 300 surveys, a forest will be considered a probable marbled murrelet nest stand. (*Id.* at 52-53.)

E. Survey Efforts and Logging Operations at THP-237

1. 1990

37. Pacific Lumber did not begin formally surveying for marbled murrelets in Owl Creek until August of 1991; however, while surveying for spotted owls on August 8, 1990, Pacific Lumber's expert witness, Steven Kerns, observed what he believed to be a marbled murrelet fly directly into the proposed harvest area of THP-237 at a height of just ten feet. (Kerns, Tr. 9/7/94 at 128-30; Pls.' Ex. 307.) Six minutes later, Kerns heard another marbled murrelet's distinctive wing beats as the bird flew directly overhead, but he did not see the bird. (Kerns, Tr. 9/7/94 at 130.) Kern's noted at the time, however, that these observations could not be confirmed as detections of marbled murrelets. (Pls.' Ex. 307.)

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2. 1991

38. On August 7, 1991, Pacific Lumber's employees conducted four, two-hour surveys for marbled murrelets at four stations in THP-237, but made no detections. (Kerns, Tr. 9/7/94 at 16; Def's. Ex. 840.) No further surveys were conducted in Owl Creek in 1991.

3. 1992

39. In April 1992, shortly after the California Board of Forestry's conditional approval of THP-237 and California's listing of the marbled murrelet as an endangered species, Pacific Lumber began conducting marbled murrelet surveys at 19 numerically designated stations in Owl Creek. (Def's. Ex. 829.) The location of each of the 19 survey stations was selected by Pacific Lumber. (Kerns, Tr. 9/7/94 at 11.) Although the 1992 PSG Protocol recommends that surveyors establish a minimum of one survey station for every 30 acres of habitat, Pacific Lumber placed only four of its 19 survey stations in the 160 acre section of THP-237 containing the proposed harvest area and the marbled murrelet mitigation zones.[23] (Pls.' Ex. 273 at 6; Kerns, Tr. 9/7/94 at 14; Defs. Ex. 841.)

40. During the 1992 survey season, marbled murrelet surveys at THP-237 were conducted by a combination of

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23. Stations 1 through 9 extend from the northern boundary of THP-237 through the Owl Creek forest to a point almost one mile north. (Def's. Ex. 841.) Stations 10, 11, 13 and 14 are located in the proposed harvest area. (*Id.*). Stations 15, 16, 17, 18 and 19 are located to the south of THP-237. (*Id.*). Stations 12 and 16 are located just outside the western edge of THP-237 in an area that has previously been harvested. (*Id.*; Pls.' Ex. 292.) A map of Pacific Lumber's survey stations is attached as Appendix A.

Pacific Lumber employees, who were performing these surveys in addition to their regular duties, and local wildlife biology students or college graduates who were in need of summer employment.[24] (Kerns, Tr. 9/7/94 at 179-81.) Pacific Lumber retained Wildlands Resource Managers ("WRM"), and Natural Resource Management Corporation ("NRM"), to provide the additional marbled murrelet surveyors.[25](Herman, Tr. 9/6/94 at 229-30; Miller, Tr. 8/16/94 at 157-58.)

41. Pacific Lumber directed when, where and how the marbled murrelet surveys in THP-237 were to be taken by WRM and NRM. (Kerns, Tr. 9/7/94 at 134.) Pacific Lumber's Chief of Forestry, Ray Miller ("Miller"), was put in charge of the marbled murrelet surveys, and he managed the surveys "as part of managing our timber[.]" (Miller, Tr. 8/16/94 at 151, 162-63.) Pacific Lumber instructed its surveyors not to record a

24. All of the surveyors were certified by the State of California as qualified to perform marbled murrelet surveys. (Kerns, Tr. 9/7/94 at 23-24.) Pacific Lumber's employees became certified as marbled murrelet observers "because the company asked us to." (Beck, Tr. 8/16/94 at 204-05.)

25. WRM is a proprietorship owned by Pacific Lumber's expert witness, Steven Kerns, and his wife. (Kerns, Tr. 9/7/94 at 167.) Although Kerns were proffered by Pacific Lumber as an expert on the marbled murrelet, he does not have either a masters or doctorate degree in biology (he has an undergraduate degree in anthropology and biology), he never observed a marbled murrelet until 1988, and he did not become a certified marbled murrelet surveyor until 1993. (*Id.* at 118.) Moreover, all of Kerns' marbled murrelet research has been conducted exclusively for Pacific Lumber. (*Id.* at 118-19.) Since 1990, Kerns' firm, WRM, has been paid $942,000.00 to conduct marbled murrelet research for Pacific Lumber. (Tr. 9/8/94 at 161-62.) Additionally, WRM is given the use of a house in Pacific Lumber's company town, Scotia, California virtually free of charge. (Herman, Tr. 9/6/94 at 165-66; Kerns, Tr. 9/6/94 at 243.) When WRM personnel attend professional conferences, Pacific Lumber pays all of their travel costs. (Kerns, Tr. 9/7/94 at 164-65.)

marbled murrelet detection unless they were "100 percent" certain that they had actually observed a murrelet. (*Id.* at 185-86.) Additionally, Pacific Lumber's surveyors were instructed not to record a detection if they heard only one "keer" call, or if they heard the marbled murrelet's distinctive wing beats. (Beck, Tr. 8/16/94 at 205; Penney, Tr. 8/18/94 at 111-12.)

42. Despite these and other restrictions which deviated from the PSG Protocol, during 14 days of surveying between April 17 and June 16, 1992, Pacific Lumber's surveyors recorded 70 detections of marbled murrelets at numerous locations in and around THP-237, including 16 detections of marbled murrelets in the proposed harvest area itself. (Pls.' Exs. 94, 292 and 293; Rodgers, Tr. 8/16/94 at 234, 242; Moore, Tr. 8/17/94 at 151-52.) Without any further examination, this significant number of detections during the pre-peak season for marbled murrelet activity would at least indicate the "presence" of marbled murrelets in THP-237.(Pls.' Ex. 273 at 11; Pls.' Ex. 277 at 14.)However, further examination reveals that several of these detections are indicative of "occupied behavior" as defined by the PSG Protocol.

43. At least 11 of the 70 detections of marbled murrelets at Owl Creek, or 16 percent, were visual detections. (Pls.' Ex. 292.) This is significant because nearly 75 to 95 percent of all marbled murrelet detections in California are audible detections. (Pls.' Ex. 273 at 6; Pls.' Ex. 277 at 6.) Moreover, the significance of these detections is enhanced because many of the surveys taken during this period were conducted in less than optimal weather conditions. Pacific Lumber's surveyors recorded 100 percent cloud cover at some or all of the survey stations in Owl Creek on 12 of the 14 days when surveys were conducted; fog was recorded at some or all of the survey

stations on 11 of the 14 days; and heavy fog and rain were recorded on six of the 14 days. (Pls.' Ex. 292.) In fact, all but one of the visual detections were recorded on days with 100 percent cloud cover, and ten visual detections were recorded on days with rain and fog. (*Id.*)

44. On April 29, 1992, WRM surveyor James Denison ("Denison") recorded nine detections, including five visual detections, of 16 marbled murrelets flying over Station 16, which is located along a logging road at the southwestern edge of the Owl Creek forest, adjacent to the proposed retention area of THP-237. (Pls.' Ex. 292; Def.'s Ex. 841.) Some of the birds were observed flying west to east or north to northeast, into or above the Owl Creek stand, but the majority of the birds were observed flying silently in a southerly direction through or above the proposed retention area. (Pls.' Ex. 292.) Denison recorded the height of the birds as "90 +"; however, he did not indicate a unit of measure (feet or meters). (*Id.*) Depending on whether the birds were flying at a height of 90 feet or 90 meters, Denison's detections could be classified as "subcanopy" flight, or "occupied behavior" in accordance with the PSG Protocol. (Pls.' Ex. 277 at 13.) In any event, Denison's detections are important because of the number of marbled murrelets that he detected, given the scarcity of the species, and the isolation of the Owl Creek stand from other suitable nesting habitat.[26]

45. On April 30, 1992, Denison observed three marbled murrelets flying at a height of 25 meters above Station 15,

26. Station 16 was the only station surveyed in Owl Creek on April 29, 1992. If more stations had been surveyed on this date, it is likely that more information would be available about the behavior of the 16 murrelets detected by Denison, and other murrelets that may have been present in the Owl Creek stand on that day.

which is located adjacent to THP-237 on the southeastern edge of the proposed harvest area. (Denison, Tr. 9/8/94 at 19, 28; Kerns, Tr. 9/7/94 at 14; Pls.' Ex. 284; Chinnici, Tr. 8/17/94 at 37.) According to Denison, the murrelets flew toward him from the west and turned south. (Denison, Tr. 9/8/94 at 15.) Thus, the marbled murrelets flew either directly out of, or adjacent to, the proposed harvest area of THP-237. Pacific Lumber's expert witness later characterized the birds as flying "just below top of tree" and noted, "[t]he Protocol states that this observation is a fly through the canopy, indicating an activity site." (Kerns, Tr. 9/7/94 at 139, 185.) As such, Denison's detection constitutes an observance of "occupied behavior" under the PSG Protocol, signifying that the proposed harvest area of THP-237 is a probable marbled murrelet nest stand. (Pls.' Ex. 286.)

46. On May 1, 1992, a marbled murrelet was observed circling above the canopy at Station 17, which is adjacent to the southwestern portion of the Owl Creek stand, between the proposed retention area and the proposed harvest area of THP-237. (Pls.' Ex. 292.) According to the surveyor, Mark Rodgers ("Rodgers"), the marbled murrelet was flying at a height of 300 feet, from the northeast (the direction of the proposed harvest area) to the southeast. (*Id.*) According to the 1992 PSG Protocol, which Pacific Lumber was supposed to be operating under at the time, circling above the canopy of a stand of suitable habitat, or above a stand adjacent to suitable habitat, is "an extremely strong indication of an occupied site." (Pls.' Ex. 273 at 10.) The current PSG Protocol states that circling above the canopy is common over nest stands and occupied stands; therefore, it indicates possible occupancy of a stand. (Pls.' Ex. 277 at 13.) The 1994 Protocol recommends increasing survey efforts in stands where circling is observed. (*Id.*) After Rodgers' observation of circling on May 1, 1992, however,

there was a three week lapse in Pacific Lumber's surveys. (Pls.' Ex. 292.)

47. In addition to the 11 visual detections recorded at Owl Creek between April 17 and June 16, 1992, Pacific Lumber's surveyors recorded 59 audible detections of marbled murrelets during the same period. (Pls.' Ex. 292.)[27] Many of these audible detections are significant because, like the visual detections, they were recorded on days with less than optimal weather conditions, and some of these detections indicate behaviors which are classified as "occupied behaviors."

48. On April 30, 1992, a day which was plagued by heavy rain, wind and fog, Pacific Lumber's surveyors recorded 17 audible detections of marbled murrelets at seven different survey stations in Owl Creek, including three of the four survey stations in the proposed harvest area of THP-237. (Pls.' Ex. 292.) At Stations 10 and 14, which are located near the center of the proposed harvest area, two surveyors recorded nine audible detections of marbled murrelets within 50 to 150 meters of their stations. (Pls.' Exs. 292 and 292-T.) Neither surveyor recorded a visual detection (both surveyors noted that heavy fog and rain had a negative impact on their survey efforts); however, their audible detections are significant because they suggest "occupied behavior." At Station 10, NRM surveyor Sean McAllister ("McAllister") recorded two audible detections of

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27. Plaintiffs' Exhibit 292 is a compilation of the original survey data sheets from the 1992 survey season. Some, but not all, of the data sheets in Plaintiffs' Exhibit 292 are also designated alphabetically. Wherever possible, the court will refer to a particular survey data sheet by its numerical and alphabetical designation. If the data sheet does not have an alphabetical designation, the court will refer to the survey sheet as Plaintiffs' Exhibit 292, but the date of the survey and the survey station also will be referenced.

marbled murrelets engaging in unknown behavior at a height of 50 meters, which is well below the canopy level of 75 meters. (Pls.' Ex. 292; Pls.' Ex. 298 at 4.) This suggests that marbled murrelets were either flying below the canopy level or nesting in the subcanopy, both of which are "occupied behaviors." (Pls.' Ex. 298 at 4; Pls.' Ex. 277 at 13.) Similarly, at Station 14, NRM surveyor Dirk Embree ("Embree") recorded seven audible detections of marbled murrelets within 50 to 100 meters of his position. (Pls.' Ex. 292-T.) Embree recorded three separate detections of marbled murrelets calling from the same direction, due north, at a distance of 50 to 100 meters. (*Id.*) Embree did not, however, record a departure direction for the birds, indicating that the marbled murrelets were calling from a stationary location in the stand, which, according to the PSG Protocol, is "very rare" and indicates "occupied behavior" in the heart of the proposed harvest area. (Pls.' Ex. 277 at 13.)

49. On May 1, 1992, Denison recorded two audible detections of three marbled murrelets vocalizing at Station 18, which is located immediately to the south of the proposed retention area of THP-237. (Pls.' Ex. 292; Def's. Ex. 841.) Denison indicated that the birds were flying at a height of only 20 meters from the northwest to the northeast (into the stand), and from the northeast to the east (out of the stand). (Pls.' Ex. 292.) Denison's detections indicate that the marbled murrelets were accessing either the proposed retention area or the proposed harvest area to the northeast, which, according to the PSG Protocol, is evidence of "occupied behavior." (Pls.' Ex. 277 at 13.)

50. On June 8, 1992, WRM surveyor David Fortna ("Fortna") recorded a marbled murrelet "jet sound" at Station

17.[28] (Miller, Tr. 8/16/94 at 167.) A "jet sound" is a distinctive sound that a marbled murrelet makes when it "jet dives" from a high altitude into a nest tree. (Nelson, Tr. 8/16/94 at73.) Flying into the canopy or a nest tree is classified as an "occupied behavior" by the PSG Protocol. (Pls.' Ex. 277 at 13.) In fact, observations of marbled murrelets flying into a nest tree are considered to be so important that the PSG Protocol recommends that they be reported immediately to interested scientists and responsible wildlife agencies. (*Id.* at 15.) Pacific Lumber, however, never reported Fortna's detection to anyone.[29]

51. In accordance with the Board of Forestry's mandate, Pacific Lumber was supposed to be operating under the most current PSG Protocol during the 1992 survey season. The 1992 PSG Protocol recommends that marbled murrelet surveys be conducted for a minimum of two consecutive years to establish

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28. The significance of Fortna's "jet sound" detection is not reduced because he did not see a marbled murrelet. As previously noted, very few marbled murrelet detections in California are visual detections. Also, several Pacific Lumber surveyors indicated that June 8, 1992 was a day with 100 percent cloud cover and heavy fog. One surveyor even indicated that the fog "cut what visibility there was down to nothing." (Pls.' Ex. 292-P.)

29. In fact, Fortna's original "jet sound" survey sheet is no longer in existence. Pacific Lumber's Chief of Forestry, Ray Miller, testified at the trial that Fortna's original survey sheet was "lost." (Miller, Tr. 8/16/94 at 168.) Miller replaced the original "jet sound" survey sheet with another survey sheet that he personally filled out, except Miller changed the new survey sheet to indicate "No Detections." (*Id.* at 165-66; Pls.' Ex. 41.) On the second day of trial, Pacific Lumber produced a copy of a survey data sheet for Station 17 on June 8, 1992 which indicates "No Detections;" however, somebody has written: "This ain't my writing!" underneath the words "No Detections." (Pls.' Ex. 292-Q.)

"presence" or "absence" of marbled murrelets from a particular site, unless the site is determined to be *occupied* with fewer survey visits. (Pls.' Ex. 273 at 11.) It also identifies mid-summer (the month of July) as the peak period for marbled murrelet detectability in California, and it recommends that at least two surveys be conducted during this period, with at least one survey occurring after July 1. *(Id.* at 5.) Nevertheless, Pacific Lumber ignored both the PSG Protocol and the Board of Forestry's mandate by terminating its marbled murrelet surveys at THP-237 after June 16, 1992.

52. On Thursday, June 18, 1992, Miller transmitted a letter to Ken Moore at the DFG which summarized the pre-peak survey data from ten of Pacific Lumber's 19 survey stations in Owl Creek.[30] (Miller, Tr. 8/17/94 at 171-72, 176; Pls.' Ex. 51.) Miller's letter stated:

> As you will note from review of the data, no activity sites were found to exist anywhere within or adjacent to the plan area. Since there is no evidence that the THP area contains an active murrelet site or possesses a potential impact to a murrelet as provided

30. Moore is one of the DFG biologists responsible for determining whether a "take" of a protected species will occur during the implementation of a proposed timber harvest plan. During the trial, Moore testified that it was customary for Pacific Lumber to submit wildlife survey data, a map of survey stations, an aerial photograph of the affected timber harvest plan area, along with the narrative summary of survey results to the DFG, and for the DFG and Pacific Lumber to consult about the wildlife survey results before the DFG would approve timber harvest operations. (Moore, Tr. 8/17/94 at 124-28.) In this instance, Miller's letter did not enclose either survey data sheets or aerial photographs of THP-237, nor were any consultations held regarding the survey results.

> in 14 CCR 1036.1 [sic], additional consultation with Fish and Game is not necessary, and timber operations will be commenced.

(Pls' Ex. 51.)

53. On the following day, Friday, June 19, 1992, before Moore even had a chance to review Miller's letter, Pacific Lumber began harvesting operations in THP-237.[31] The harvesting was conducted at the direction of the company's president, John Campbell. (McLaughlin, Tr. 8/16/94 at 196.)

54. Pacific Lumber conducted logging on five separate areas of THP-237 from Friday, June 19, 1992 until Tuesday, June 23, 1992, when operations were halted at the request of the CDF. (*Id.* at 201-02; Pls.' Ex. 64; Moore, Tr. 8/17/94 at 151; Herman, Tr. 9/6/94 at 143.) Pacific Lumber's logging manager, Dan McLaughlin ("McLaughlin"), testified that logging over a weekend was highly unusual. In fact, McLaughlin testified that in his sixteen years with the company, Pacific Lumber's logging crews never worked on a Sunday except in the case of fire, flood or heavy snowfall. (McLaughlin, Tr. 8/16/94 at 198-99.) More importantly, many of the areas harvested in THP-237 in June 1992 were immediately adjacent to survey stations where several detections of marbled murrelets were recorded between

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31. Moore received Miller's letter on Saturday, June 20, 1992, the day *after* harvesting began, and immediately sent a response to Pacific Lumber via facsimile. (Moore, Tr. 8/17/94 at 127-29, 132-33; Pls.' Ex. 10.) On that Saturday, Moore was not aware that harvesting operations had begun the day before in THP-237, and he did not become aware of it until he was called in from the field on Monday, June 22, 1992 to discuss the logging. (*Id.* at 130, 150-51.)

April and early June, including Stations 10, 13 and 14 in the proposed harvest area, and Station 15, where "occupied behavior" was observed by Denison on April 30, 1992. (Pls.' Exs. 64, 255 and 285.)

55. At the request of the DFG, Pacific Lumber resumed marbled murrelet surveys in THP-237 after the June 1992 harvest. (Moore, Tr. 8/17/94 at 152.) Whereas 70 marbled murrelet detections were recorded prior to the June 1992 harvest, only six detections were recorded in the month after the harvest. (*Id.* at 151-52.) None of these detections were recorded in the areas that Pacific Lumber harvested the previous month. (Pls.' Ex. 292.)

56. After the June 1992 harvest, Pacific Lumber added two survey stations, Stations 20 and 21, along a road that bisects the proposed retention area in the southwestern portion of THP-237. (Pls.' Ex. 285.) This was the first time that Pacific Lumber placed survey stations in the southwestern portion of the Owl Creek forest, which is the closest part of the forest to the sea, and the direction where one would expect a marbled murrelet to come from on its journey to its nest. All of Pacific Lumber's post-harvest detections in Owl Creek during the remainder of the 1992 survey season were recorded in the vicinity of these two stations. (Pls.' Ex. 292.)

57. On July 1, 1992, NRM surveyor William Goggin ("Goggin") recorded one detection of three marbled murrelet vocalizations at a point 200 meters to the west of Station 21. (*Id.*) On the same morning, NRM surveyor Maya Conrad ("Conrad") recorded one detection of six marbled murrelet vocalizations to the north and west of Station 20, which is near

the western edge of the proposed retention area.[32] (*Id.*)

58. On July 10, 1992, Fortna recorded three alternating marbled murrelet vocalizations at Station 21. (*Id.*) According to Fortna, the birds were detected approximately 200 meters to the west and below Station 21 in the creek drainage. (*Id.*) Fortna's description places the marbled murrelets at a point below the canopy in the heart of the proposed retention area of THP-237. (Def s. Ex. 841.) This indicates that the proposed retention area of THP-237 is "occupied" by the marbled murrelet. (Pls.' Ex. 273 at 13.)

59. Finally, on July 14, 1992, Fortna detected a single marbled murrelet calling from a point approximately 300 meters south of Station 16, which would place the bird just south of Station 20 in the proposed retention area. (Pls.' Ex. 292.) Fortna's July 14, 1992 detection, as well as the other July 1992 detections in the vicinity of Stations 20 and 21, support a finding that the proposed retention area of THP-237 is "occupied" by the marbled murrelet.

60. At the end of the 1992 survey season Pacific Lumber's Resource Manager, Thomas Herman ("Herman"), hosted a party at his home for Pacific Lumber's forestry staff, which included the company's marbled murrelet surveyors.[33] (Miller, Tr. 8/16/94 at186.) At the party, there was a target of a marbled murrelet on a dart board, at which the attendees were throwing darts. (*Id.*)

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32. Despite the PSG Protocol's recommendations that surveyors should avoid placing survey stations near loud noise sources, both Goggin and Conrad indicated that creek noise in the vicinity of Stations 20 and 21 had an adverse impact on their surveys. (Pls.' Ex. 292.)

33. Herman is also the person who was ultimately responsible for the conduct of Pacific Lumber's marbled murrelet surveys in THP-237.

Appendix C

61. On September 28, 1992, the marbled murrelet was listed as a "threatened species" under the ESA. 57 Fed.Reg. 45328 (Oct. 1, 1992). During October and November of 1992, Pacific Lumber was informed by various employees of the USF & WS that logging in Owl Creek pursuant to THP-237 would likely cause a "take" of the marbled murrelet in violation of the ESA. (Pls.' Exs. 85, 309 and 333.)

62. On November 24, 1992, the eve of the Thanksgiving holiday, Pacific Lumber again began logging THP-237 at the direction of its president John Campbell. (McLaughlin, Tr. 8/16/94 at 199, 202.) During the trial, Pacific Lumber's logging manager, Dan McLaughlin, testified that one of the reasons the company conducted logging operations in THP-237 over the holiday weekend was because of the company's fear that it "might be stopped again." (*Id.* at 200.) In fact, Thanksgiving 1992 was the only time that Pacific Lumber's logging crews had worked on a Thanksgiving weekend in McLaughlin's sixteen years with the company, and THP-237 was the only area logged by those crews on Friday, November 27, 1992, and Saturday, November 28, 1992. (*Id.* at 199-201.)

4. 1993

63. During the 1993 survey season, Pacific Lumber concentrated most of its survey efforts in the southwestern portion of the Owl Creek stand. Not surprisingly, many of the marbled murrelet detections recorded in 1993 were observed in this portion of the forest. In addition, Pacific Lumber failed to conduct marbled murrelet surveys at Owl Creek for a period of 71 consecutive days. (Moore, Tr. 8/18/94 at 90-91.) This was clearly a violation of the PSG Protocol. (Pls.' Ex. 274 at 5.) Nevertheless, there were significant detections of marbled murrelets in THP-237 during 1993.

Appendix C

64. On April 16, 1993, WRM surveyor Erin O'Bryan ("O'Bryan") recorded a visual detection of two marbled murrelets circling 20 meters above the canopy at Station 21, which is in the proposed retention area of THP-237. (Pls.' Ex. 280 .) According to O'Bryan, the murrelets flew directly over the canopy at Station 21, heading from the southeast to the west. (*Id.*) According to the 1993 PSG Protocol, circling above the canopy is considered "occupied behavior;" however, the protocol recommends additional surveys depending on the height of the birds above the canopy and distance from potential habitat. (Pls.' Ex. 274 at 12.) In this case, two marbled murrelets flew directly over suitable habitat at a height of only twenty meters. This provides strong evidence that the southwestern portion of the Owl Creek stand is "occupied" by the marbled murrelet.

65. On July 1, 1993, five surveyors conducted Pacific Lumber's first search for marbled murrelet eggshell fragments in Owl Creek. (Def's. Ex. 838 at 5-6.) The surveyors searched the ground in the vicinity of Station 20 for two and one-half hours, with no success. (*Id.*)

66. On July 7, 1993, four Pacific Lumber surveyors conducted a search for marbled murrelet eggshell fragments on a strip of land approximately 120 feet wide and 300 meters long between Stations 6 and 7, which are located to the north of THP-237 on the opposite bank of the Owl Creek. (Pls.' Ex. 284.) The surveyors searched the ground around 70 trees for two hours, with no success.[34] (*Id.*)

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34. It is not surprising that the surveyors failed to find eggshell fragments in the vicinity of Station 7. There has never been a marbled murrelet detection recorded at Station 7. In fact, some of the Pacific Lumber

(Cont'd)

67. On July 14, 1993, another Pacific Lumber crew conducted ground searches in the vicinity of Stations 16 and 21, once again without success. (Def's. Ex. 838 at 3-4.) One of the surveyors, however, indicated that the area of the search was not very good habitat for the marbled murrelet. (*Id.* at 4.)

68. On July 25, 1993, WRM surveyor Jeff Steinman ("Steinman") recorded 11 detections of 14 marbled murrelets vocalizing and circling above and below the canopy at Station 20, which is to the southwest of Station 21 in the proposed retention area of THP-237. (Pls.' Ex. 279.) According to Steinman, two marbled murrelets flew 50 feet below the canopy heading from the east to the north; one marbled murrelet flew 50 feet below the canopy heading from the south to the northeast, which is in the direction of the proposed harvest area; two marbled murrelets were observed circling at the top of the canopy (150 feet); and five marbled murrelets were observed flying just at or above the top of the canopy (150 feet). (*Id.*) According to the 1993 PSG Protocol, circling below the canopy provides some of the strongest evidence that a stand is "occupied." (Pls.' Ex. 274 at 12.) Given the large number of marbled murrelets observed flying at or below the canopy level of Station 20 on July 25, 1993, there can be no question that the southwestern portion of the Owl Creek stand is "occupied" by the marbled murrelet.

5. 1994

69. On June 15, 1994, four marbled murrelets were

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surveyors who have visited the site have commented that it is questionable marbled murrelet habitat because of its elevation, the presence of corvids, and almost complete canopy closure. (Pls.' Exs. 292-A, 292-C, 292-P and 292-S.)

observed flying just over the top of the canopy at Station 16, which is located on the southwestern edge of the Owl Creek stand adjacent to the proposed retention area of THP-237. (Pls.' Ex. 261 at 20.) According to the surveyor, Nick Matthews, three murrelets flew directly overhead from east to west, heading from the direction of the proposed retention area to the sea. (*Id.* at 21.) One other murrelet flew over the canopy from the northeast to the southwest, heading from the direction of the proposed harvest area to the sea. (*Id.*)

70. On July 11, 1994, a WRM surveyor recorded two detections of 13 "overlapping" marbled murrelet vocalizations from a stationary position located 150 meters to the southwest of Station 21, which is in the proposed retention area of the stand. (Def's. Ex. 830.) This indicates that the marbled murrelets were calling from a stationary position in the stand, which is classified as "occupied behavior." (Pls.' Ex. 277 at 13.)

71. On the same day, WRM surveyor Michael Penney ("Penney"), observed a pair of marbled murrelets flying below canopy level at Station 6, which is immediately to the north of the proposed harvest area of THP-237. (Penney, Tr. 8/18/94 at 107-09; Pls.' Ex. 290; Kerns, Tr. 9/7/94 at 15.) According to Penney, the marbled murrelets were flying from the southeast, directly out of the proposed harvest area of THP-237, to the northeast.[35] (Penney, Tr. 8/18/94 at 108; Pls.' Ex. 290.) Under

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35. During the trial, Penney testified that, after he was finished surveying at Station 6 on July 11, 1994, he was called at home by Tad Diaz ("Diaz"), the head supervisor for WRM's Marbled Murrelet Team, and told that he would have to go back to Station 6 the following day to "review" his detection. (*Id.* at 113-14.) According to Penney, Diaz told him the detection was "a real big deal" and "the lawyers would be all over this." (*Id.*) On July

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the 1994 PSG Protocol, Penney's detection indicates that the proposed harvest area of THP-237, which is adjacent to Station 6, is "occupied" by the marbled murrelet.[36](Pls.' Ex. 277 at 13.)

72. On July 14 and July 21, 1994, Pacific Lumber conducted ground searches for marbled murrelet eggshell fragments to the north and south of Station 6. (Def's. Ex. 838 at 7-8.) A total of 18 surveyors searched the area for three and one-half hours, without success. (*Id.*)

73. Pacific Lumber stopped surveying for marbled murrelets in Owl Creek after July 21, 1994.

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12, 1994, Penney was made to revisit the site and write out a narrative of his detection. (*Id.* at 119-22; Pls.' Exs. 278, 290 and 292.) During the drive back to Station 6, Diaz told Penney there was "politics" involved in the marbled murrelet study at THP-237 and "there's a lot of money tied up in this stand." (Penney, Tr. 8/18/94 at 117-18.) While at Station 6, Diaz informed Penney that ground searches would be conducted in the area of Station 6, but he said " we'll probably lose our contract if we find anything." (*Id.* at 132-33.) Penny was also told not to tell anyone of his conversation with Diaz. (*Id.* at 122.) In spite of what was obviously an attempt on behalf of Pacific Lumber to encourage Penney to reconsider his July 11, 1994 detection, Penney's account of this detection has never wavered. (*Id.* at 120.)

36. One week after Penney observed the marbled murrelets flying below the canopy at Station 6, Penney detected the bird's distinctive wing beats, another indication of "occupied behavior," while surveying in Owl Creek. (Penney, Tr. 8/18/94 at 111-13.) Penney indicated this detection on his survey form, however, when attempted to hand in the form to WRM, he was told by his supervisor, John Eldridge, that he was not allowed to write down a detection unless he actually saw a marbled murrelet or heard it vocalizing. (*Id.*) Penney had to fill out a second survey sheet, this time omitting any reference to his detection of the marbled murrelet's distinctive wing beats. (*Id.*)

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F. THP-237 is "Occupied" by the Marbled Murrelet

74. After carefully reviewing all of the evidence, and weighing the credibility of the witnesses, the court finds that EPIC has proven, by a preponderance of the evidence, that THP-237 is "occupied" by the marbled murrelet. That is, EPIC has proven, by a preponderance of the evidence, that marbled murrelets are nesting in THP-237.

75. Under the PSG Protocol, the test for determining whether a stand of potential habitat is "occupied" is simple: if a surveyor detects marbled murrelets during a survey visit *and* observes "occupied behavior," the entire stand is classified as "occupied." (Pls'. Ex. 277 at 12-13, 29.) EPIC has proven that THP-237 satisfied this test.

76. First, EPIC has established that THP-237 is suitable habitat for the marbled murrelet. It has been classified as such by EPIC's expert witnesses, the PSG Protocol, the USF & WS Marbled Murrelet Recovery Team, and by Pacific Lumber itself in its map of the most suitable nesting habitat for the marbled murrelet on company property.[37] (Moore, Tr. 8/17/94 at 158; Nelson, Tr. 8/16/94 at 86; Burkett, Tr. 8/18/94 at 185, 262-65; Pls.' Ex. 248 at 2-3; Pls.' Ex. 277 at 3; Pls.' Ex. 329.)

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37. During the trial, Pacific Lumber's expert witnesses, Speich and Kerns, maintained that the proposed harvest area of THP-237 contained less suitable habitat for the marbled murrelet than the proposed retention area. (Speich, Tr. 9/8/94 at 47, 54, 64-65; Kerns, Tr. 9/7/94 at 47-48, 101.) Their testimony on this issue, however, is entirely contradicted by Pacific Lumber's HCP, which Speich and Kerns helped prepare for the company, and Pacific Lumber's map of the most suitable nesting habitat for the marbled

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77. Second, Pacific Lumber's survey records from 1992, 1993 and 1994 demonstrate that numerous instances of "occupied behavior" have been observed in and around THP-237, in both the proposed harvest area and the proposed retention area. (Nelson, Tr. 8/16/94 at 62.) Therefore, in accordance with the PSG Protocol, THP-237 is properly classified as an "occupied site." (Pls.' Ex. 277 at 13.)

78. It is important to remember that the marbled murrelet is an elusive species, and relatively few murrelets remain in the at-sea population off south central Humboldt County. This means that *any* detection of a marbled murrelet at a stand of suitable habitat in south central Humboldt County is significant. Add to this the remoteness of the Owl Creek stand, as well as its isolation from other suitable habitat, and the detections of marbled murrelets at THP-237 begin to take on greater significance.

79. In this case, there have been approximately 100 detections of marbled murrelets at Owl Creek, throughout the birds' breeding season, for a period of three consecutive years. It is reasonable to conclude that there can be only one

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murrelet on company property. (Pls.' Exs. 329 and 334.) The map, which was produced for the first time on September 7, 1994, the second to last day of the trial, identifies the proposed harvest area of THP-237 as some of the most suitable habitat for the marbled murrelet on Pacific Lumber's property. (Speich, Tr. 9/8/94 at 146-52; Pls.' Ex. 329.) The proposed retention area, however, is classified as less suitable than the proposed harvest area. (Pls.' Ex. 329.) After carefully comparing the testimony of Speich and Kerns with Pacific Lumber's map and HCP, the court finds that the testimony of Speich and Kerns on the issue of suitable habitat lacks credibility.

explanation for the marbled murrelets' continued presence in Owl Creek: the marbled murrelet is using the Owl Creek stand for nesting purposes. As Pacific Lumber states in its HCP:

> There is every reason to believe that during the spring and early summer, when activity levels are lower, that largely nesting birds are being detected during morning observation periods. This is the period when most birds are incubating eggs, attending newly hatched young, and starting into the nestling period. The period when detection rates increase, often dramatically, is when most nests contain nestlings.

(Pls.' Ex. 334 at V-4.)

80. During the trial, Pacific Lumber attempted to minimize the significance of its marbled murrelet detections by arguing that the quantity of detections, especially detections of "occupied behavior," was too low, when compared to the number of hours spent surveying, for the finder of fact to conclude that THP-237 is "occupied" by the marbled murrelet. Pacific Lumber's expert witnesses, Speich and Kerns, opined that the significant number of "no detections" recorded by Pacific Lumber's surveyors, coupled with the lack of observations of behaviors closely associated with nesting, leads them to conclude that THP-237 is not "occupied" by the marbled murrelet. (Speich, Tr. 9/8/94 at 74-75; Kerns, Tr. 9/7/94 at 47-48, 52-56, 91-94.) The opinions of Speich and Kerns are entirely dependent upon the integrity of Pacific Lumber's surveys, or more accurately, that portion of Pacific Lumber's survey data which indicates that marbled murrelets

were not detected in THP-237. As will be discussed below, this portion of Pacific Lumber's surveys is patently unreliable.

81. Pacific Lumber's "no detections" argument unsuccessfully attempts to sidestep a fundamental flaw in the manner in which Pacific Lumber has dealt with the task of evaluating the potential presence of marbled murrelets in Owl Creek. Quite simply, Pacific Lumber's marbled murrelet surveys were not conducted by an independent and impartial third party using the scientific method to determine whether the Owl Creek stand is occupied by the marbled murrelet. Instead, Pacific Lumber's marbled murrelet surveys in Owl Creek were conducted by surveyors, who to a considerable extent were Pacific Lumber employees, and all of whom were under the direct supervision of Pacific Lumber's top and middle management, whose understandable loyalty to Pacific Lumber extended to the harvesting of THP-237 as the desired company goal. As Thomas Herman, the head of Pacific Lumber's forestry operations, stated during the trial: "Our intention in running our business is to grow and harvest trees. Just about anything we do is intended to cut and grow trees." (Herman, Tr. 9/6/94 at 174.) Herman admitted that the purpose of Pacific Lumber's marbled murrelet surveys was to let the company continue its harvest operations. (*Id.*) Pacific Lumber displayed its commitment to harvesting trees at all costs when it logged THP-237 in June and November 1992, contrary to the conditional approval it had received from the Board of Forestry just a few months before, and despite mounting evidence that Pacific Lumber had in its possession that the stand was occupied by the marbled murrelet. In this case, Pacific Lumber's bold pursuit of its intention "to cut and grow trees" renders the objectivity of its survey results highly suspect.

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82. Additionally, there is sufficient evidence in the record for the court to find that Pacific Lumber administered its marbled murrelet surveys at THP-237 with the intent to either avoid detecting marbled murrelets or, to the extent that making detections could not be helped, to grossly understate the marbled murrelets' presence in THP-237. Despite the Board of Forestry's expressed condition of approval, Pacific Lumber's marbled murrelet surveys were never conducted in accordance with the PSG Protocol. Moreover, Pacific Lumber's utilization of the following methods to conduct marbled murrelet surveys at THP-237 provides clear evidence that the company's marbled murrelet surveys were either designed to fail to detect murrelets, or they were administered with indifference as to whether the required procedurewould be used or not:

(a) Pacific Lumber's employees decidedwhere the survey stations would be located and when they would be manned;

(b) only four survey stations were located in the proposed harvest area itself, and only two survey stations were located on the western edge of THP-237 — the direction from which the birds could be expected to fly from the sea and into the stand;

(c) in direct contradiction to the PSG Protocol, survey stations were located near loud noise sources, and a substantial number of surveys were conducted in adverse weather conditions, which were known to inhibit the surveyors' ability to detect murrelets;

(d) in 1992, Pacific Lumber harvested in THP-237 during the middle of the nesting season, at the very beginning of the peak period for marbled murrelet detectability;

(e) in 1993, 71 consecutive days were allowed to elapse between surveys;

(f) despite the fact that Pacific Lumber's surveyors were trained to be able to audibly detect the marbled murrelet and were certified by the State of California as being able to do so, Pacific Lumber's survey managers instructed the company's field surveyors that they were not to record detections of single marbled murrelet "keer" calls, or detections of the marbled murrelets' distinctive wing beats or "jet sounds;"

(g) two surveyors who recorded visual detections were interrogated by their supervisors, on the surveyors' own time, under circumstances that appear to have been calculated to persuade the surveyors to change or delete marbled murrelet detections that were contrary to Pacific Lumber's interests; and

(h) Pacific Lumber never conducted ground searches for eggshell fragments in THP-237 until July 1993, and it never conducted ground searches in the proposed harvest area until July 14, 1994, after Penney observed two marbled murrelets flying below the canopy level at Station 6.

83. The weakness of Pacific Lumber's "no detection" argument is further demonstrated by the fact that Pacific Lumber has never fully complied with the Board of Forestry's requirement that it "share" information obtained from its marbled murrelet surveys with the DFG to ensure that a "take" of the marbled murrelet will not occur during harvesting. Pacific Lumber did not provide survey data sheets for the 1992 survey season to the DFG until approximately July 31, 1992, more than one month after the company surreptitiously logged

THP-237.[38] (Moore, Tr. 8/17/94 at 149.) Pacific Lumber revealed for the first time during the trial that the survey data sheets it turned over to the DFG on July 31, 1992 were not the original survey data sheets completed by the company's field surveyors at the time they conducted their surveys.

84. On the second day of the trial, August 16, 1994, Pacific Lumber revealed for the first time that its two principal survey contractors kept two different sets of survey data sheets for the marbled murrelet surveys conducted in THP-237 during 1992. (Tr. 8/16/94 at 147-50.) The first set of survey sheets, which Pacific Lumber characterized as the "original" survey sheets, were completed by NRM's certified marbled murrelet surveyors in the field at the time they conducted their surveys. (*Id.* at 147-48.) According to Pacific Lumber, NRM turned over the original survey sheets to Pacific Lumber's primary survey contractor, WRM; WRM "replicated" the original data onto a second set of survey sheets; and Pacific Lumber turned over the second set of sheets to the DFG on July 31, 1992. (*Id.*) Pacific Lumber, however, never produced the original 1992 survey data sheets until the second day of the trial, more than two years after they were originaliy completed. (*Id.* Pls.' Exs. 292 and 293.) During the trial, Kerns testified that the original survey sheets were recently uncovered in his closet at home, which he referred to as WRM's " archives." (Kerns, Tr. 9/7/94 at 39.)

85. Further examination of the original NRM survey sheets reveals that Pacific Lumber did more than merely "replicate" data from one set of survey sheets to another. Many

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38. David Fortna's June 8, 1992 "jet sound" data sheet was never provided to the DFG, and the DFG was not informed of its existence; instead, the DFG was given the substitute form filled in by Miller which incorrectly indicated that "no detections" had been made. (Miller, Tr. 8/16/94 at 167-69.)

of the original NRM survey sheets contain pertinent information which may have helped the DFG evaluate the validity of Pacific Lumber's surveys and the impact that harvesting THP-237 would have on the marbled murrelet, including: field surveyors' references to adverse weather conditions which may have had an adverse impact on survey efforts; detections of predators such as ravens, stellar jays and hawks in and around THP-237; the degree of canopy coverage at the survey stations; characteristics of the old-growth at the site; and surveyors references to whether the portion of the stand that they were surveying was suitable nesting habitat for the marbled murrelet. (Pls.' Ex. 292.) Nearly all of these comments were deleted or altered before the data was "replicated" onto the second set of survey sheets that Pacific Lumber submitted to the DFG.[39] (Pls.' Ex. 292-A-T.)

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39. For example, while surveying at Station 10 on April 30, 1992, NRM surveyor Sean McAllister recorded two audible detections of marbled murrelets engaging in unknown behavior at a height of 50 meters. (Pls.' Ex. 292-Q.) McAllister noted on his original survey sheet that "[h]eavy fog, nearby creek noise may have affected further detections." (*Id.*) McAllister's original notation was changed to "heavy fog, creek noise" on the survey sheet that Pacific Lumber submitted to the DFG and EPIC. (Pls.' Ex. 293-Q.) Similarly, on the same day, NRM surveyor Dirk Embree recorded seven audible detections of marbled murrelets at Station 14. (Pls.' Ex. 292-T.) Embree indicated on his original survey sheet that the murrelets were "fairly close, but in fog." (*Id.*) He also noted: "Foggy, rainy, windy, near creek, all these had definite impact on survey." (*Id.*) Embree's notations were altered in the sheet that Pacific Lumber turned over to the DFG. In what is obviously different handwriting the note section on the second survey sheet was changed to read: "[birds] way up in fog. . . . The fog, rain, wind all had an impact on detections. Visibility as low as 100m." (Pls.' Ex. 293-T.) Also, after surveying at Station 11 on June 2, 1992, McAllister noted on his original survey sheet: "Mature stand of Redwood and Douglas Fir, 2'-8' dbh[.] Good MaMu nest characteristics but NO DETECTIONS[.]" (Pls.' Ex.

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86. Pacific Lumber's performance concerning the reworking and withholding of the original survey data sheets materially weakens the "no-detection" premise that Speich and Kerns rely on for their opinions concerning occupancy. Consequently, these opinions are not sufficiently persuasive to dislodge a finding that EPIC has satisfied its burden of proof.

87. Finally, the court finds that Pacific Lumber's expert witnesses, Speich and Kerns, lack objectivity and credibility. Both Speich and Kerns have been paid substantial sums of money to conduct marbled murrelet research on behalf of the company, and to act as advocates for Pacific Lumber in various forums. Since 1990, Pacific Lumber has paid Kerns' firm, WRM, nearly one million dollars to conduct marbled murrelet surveys and research for the company.[40] (Tr. 9/8/94 at 161-62.) In addition, Kerns has participated in Pacific Lumber's interaction with state and federal agencies regarding the company's efforts to oppose the listing of the marbled murrelet as a protected species, to harvest THP-237, and to obtain an "incidental take" permit for the marbled murrelet.[41]

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McAllister also noted the presence of a stellar jay. (*Id.*) During Pacific Lumber's "replication" process, McAllister's notations about the stand's characteristics and the presence of a predator species were deleted. (*Id.*) The survey sheet that Pacific Lumber turned over to the DFG simply indicated that McAllister made "NO DETECTIONS." (*Id.*) Stations 10, 11 and 14 are all in the proposed harvest area.

40. This figure does not include any money which Pacific Lumber paid Kerns for appearing and testifying at trial. Additionally, WRM's marbled murrelet work has been performed exclusively for Pacific Lumber. (Kerns, Tr. 9/7/94 at 118-19.)

41. During the trial, Kerns denied that he has acted as an advocate for
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(Kerns, Tr. 9/7/94 at 153-58; Pls.' Exs. 96, 309 and 334.) Shortly before the marbled murrelet was listed as an "endangered species" by the State of California, Speich pitched his services as a "consultant" to Pacific Lumber's president, John Campbell, Kerns, and other Pacific Lumber officials, advising them to "get in front of the curve" on marbled murrelet research. (Speich, Tr. 9/8/94 at 38-41, 87.) Speich told Pacific Lumber's executives that "[i]f they want to be able to continue [to] harvest timber, they're going to have to be able to demonstrate [the] relationship of marbled murrelet to those timbers that they are projecting to harvest." (*Id.* at 41.) One of Speich's first assignments was to testify before the California Fish and Game Commission in opposition to the State of California's listing of the marbled murrelet as an "endangered

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Pacific Lumber. However, during cross-examination, Kerns demonstrated a lack of objectivity when he complained about the DFG's lack of "sensitivity" to the economic realities of the logging industry. Kerns testified:

> I think members of the Department lack sensitivity to the reality of what has to happen in the field when they ask for certain mitigations and certain research projects. . . . I think what they fail to realize at times is that when you are not supported by the government and you have to earn your own living, you have to run in the black. And that . . . you have to produce something from the ground to do that. If you demand so much from them that you put them in the red, you will put them out of business. And I think a state agency should be receptive to that. And I'm speaking not as a biologist, but [as] a citizen of this state who has witnessed a hardship in our area because a lot of people have gone out of business.

(Kerns, Tr. 9/7/94 at 162-63.)

species" under CESA. (*Id.* at 87-88.) Speich also submitted comments to the USF & WS criticizing the research upon which the federal listing of the marbled murrelet as a "threatened species" is based. (*Id.* at 88-89.) Since 1992, Pacific Lumber has paid Speich's consulting firm in excess of $250,000.00 for Speich's work regarding the marbled murrelet.[42] (*Id.* at 119-20.) Also, Speich's recent publications on the marbled murrelet have been funded either by Pacific Lumber or by the paper industry. (*Id.* at 92-93.)

88. Additionally, the expert reports of both Speich and Kerns were written with substantial input from Pacific Lumber's attorneys. Kerns repeatedly sought guidance from Pacific Lumber and its attorneys in crafting his expert report. (Kerns, Tr. 9/7/94 at 112-14.) After meeting with Pacific Lumber's attorneys, Kerns drafted and initial expert report which contained a series of outlines and proposed conclusions. (*Id.* at 112-13.) Kerns faxed his draft report to Pacific Lumber's attorneys and asked them "How much flesh should be hung on the bones?" (*Id.* at 113-14.) Kerns also reviewed and edited Speich's expert report. (*Id.* at 114.) Similarly, Pacific Lumber's attorneys gave Speich detailed instructions about what he should state in a sworn declaration that Pacific Lumber submitted to the California Court of Appeals in opposition to a temporary stay that the court had issued against THP-237. (Speich, Tr. 9/8/94 at 133-37; Pls.' Ex. 333.) In a letter dated December 1, 1992, Pacific Lumber's attorney, Frank Bacik, stated:

> [T]he declaration should be simple and

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42. This figure does not include money paid to Speich for appearing and testifying at trial.

> direct, stating that under your review of the facts and circumstances the Owl Creek plan area is not an active murrelet site or "occupied" by murrelets that will be directly "taken." . . . In general, it should say that there is no proof, and you do not believe that there is available adequate evidence or proof, to establish that implementation of the plan will kill or injure murrelets or otherwise pose a devastating risk to the continued existence of the species; that they cannot be annoyed if they are not present; that they will not be present during the non-breeding season (winter).

(Pls.' Ex. 333.) The testimony of Speich and Kerns during the trial in this ease was *identical* to the declaration proposed by Bacik in 1992.

89. As the Ninth Circuit recently stated in *Daubet:*

> One very significant fact to be considered [in the context of the court deciding whether to admit expert testimony] is whether the experts are proposing to testify about matters growing naturally and directly out of research that they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying. That an expert testifies for money does not necessarily cast doubt on the reliability of his testimony, as few experts appear in court

> merely as an eleemosynary gesture. But in determining whether proposed expert testimony amounts to good science, we may not ignore the fact that a scientist's normal workplace is in the lab or the field, not the courtroom or the lawyer's office.

Daubert, 43 F.3d at 1317. This standard is equally applicable when weighing the credibility of an expert witness after he has testified. In this case, the court may not ignore the fact that the primary experience that Speich and Kerns have had with the marbled murrelet has grown out of their involvement with Pacific Lumber, for which they have been paid presumably fair and full compensation; that their trial testimony, which contradicted the generally accepted scientific knowledge about the marbled murrelet, appears to have been crafted by Pacific Lumber's attorneys; and that Speich and Kerns have acted as advocates for Pacific Lumber in a variety of forums, including during the trial in this case. For these reasons, the court finds that Speich and Kerns lack objectivity and credibility.

90. In sum, the court finds that there have been sufficient observations of "occupied behavior" in and around THP-237 for the court to conclude that the Owl Creek stand is "occupied" by the marbled murrelet. *See, infra,* Section II-E. Pacific Lumber's attempt to minimize the significance of these detections is not persuasive because its evidence merely shows a variety of efforts by the company to avoid, or at least to discourage, the inevitable recording of detections of marbled murrelets, and to understate the importance of detections that are recorded. The other evidence of nearly 100 detections, however, has demonstrated that these efforts failed. Finally, the opinions of Pacific Lumber's expert witnesses regarding the

marbled murrelets' occupancy of THP-237 are unreliable, principally because they are dependent upon Pacific Lumber's discredited claims that marbled murrelets do not inhabit THP-237, all of which have been shown to be based on Pacific Lumber's survey methods and reporting of survey data which are unreliable.

H. Pacific Lumber's Implementation of THP-237 would both "Harm" and "Harass" the Marbled Murrelet

91. Under the ESA, it is illegal for any person to "take" any endangered species of fish or wildlife within the United States or the territorial sea of the United States.[43] 16 U.S.C. § 1538(a)(1)(B). The ESA defines "take" as follows:

> The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

16 U.S.C. § 1532(19).

92. The USF & WS has defined the word "harass" in the ESA's definition of "take" as:

> an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral

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43. Pursuant to 50 C.F.R. § 17.31(a), threatened species are entitled to the same protection as endangered species. *See also* 16 U.S.C. § 1533(d).

> patterns which include, but are not limited to, breeding, feeding or sheltering.

50 C.F.R. § 17.3 (1993).

93. The USF & WS has defined the component term "harm" as:

> an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

Id.

94. EPIC has demonstrated that Pacific Lumber's implementation of THP-237 will sufficiently "harm" and "harass" the marbled murrelet to constitute a "taking" of the species in violation of 16 U.S.C. § 1538(a)(1)(B).

1. Harm

95. The proposed harvest area of THP-237 lies at the approximate center of the Owl Creek stand. Logging activities on THP-237 according to the plan, as amended, will result in the destruction and degradation of occupied habitat, such that marbled murrelets will actually be killed or injured by the logging operations, or through significant impairment of their essential behavioral patterns. (Nelson, Tr. 8/16/94 at 70; Moore, Tr. 8/17/94 at 175-81.) Pacific Lumber's implementation of THP-237, which calls for the immediate

removal of 40 to 60 percent of the old-growth redwood and Douglas fir trees in the proposed harvest area, will significantly impair the marbled murrelets' breeding behavior and decrease the chances of successful nesting. (Nelson, Tr. 8/16/94 at 69-73; Burkett, Tr. 8/18/94 at 262-65; Carter, Tr. 8/15/94 at 173-74.) Moreover, the harvesting of THP-237, or any other significant portion of the marbled murrelets' critical nesting habitat in southern Humboldt County, will result in a high probability that the remaining population of marbled murrelets in this region will become extinct. (Carter, Tr. 8/15/94 at 91-96; Pls.' Exs. 270 and 271.) The survivability of the marbled murrelet population utilizing Owl Creek is important to the survivability of the entire California marbled murrelet population, because the loss of this population will result in the loss of the marbled murrelet population throughout a significant portion of its range. (Carter, Tr. 8/15/94 at 94-95; Pls.' Exs. 270 and 271.)

96. Removing more than half of the trees in the 137 acre harvest area will result in the loss of a substantial portion of the nesting opportunities for marbled murrelets returning to the harvest area. (Moore, Tr. 8/17/94 at 154, 166.) The retention of a relatively small portion of suitable marbled murrelet habitat within the stand will not reduce the impact of the harvesting of THP-237 to a level of insignificance. Given the immensity of the old-growth trees, the felling of any one tree inevitably causes damage to other trees around it, and the harvest of any one part of the stand will degrade the suitability of the entire stand as nesting habitat for marbled murrelets. (*Id.* at 154-55.)

97. Since marbled murrelets return to the same tree or groups of trees in consecutive years, the harvest of half of the trees in the center of the stand will likely cause returning marbled murrelets to become disoriented and significantly decrease the likelihood that they will be able to successfully

nest and raise their young to fledgling. (Nelson, Tr. 8/16/94 at 70-71.) If THP-237 is implemented, marbled murrelets returning to the Owl Creek stand will be subject to increased competition for the few remaining nest sites, and some individual marbled murrelets will likely fail to find nest sites. (*Id.*)

98. The remaining Owl Creek stand will be much more open and fragmented, a condition that will increase the likelihood of avian predation upon the remaining marbled murrelets who achieve nesting, their eggs, and their young. (Burkett, Tr. 8/18/94 at 263-64; Carter, Tr. 8/15/94 at 111.) In fact, an examination of the original NRM survey sheets from the 1992 survey season reveals that a number of marbled murrelet predators have been detected in and around the Owl Creek stand, including in the harvest area itself.[44] (Pls.' Ex. 292.)

99. The loss of canopy which will occur if THP-237 is implemented will force returning murrelets to attempt to nest in the degraded nest sites, or be forced to attempt nesting in substandard habitat. (Burkett, Tr. 8/18/94 at 264-65; Moore, Tr. 8/18/94 at 59.) Nesting in substandard habitat will also subject the marbled murrelet to increased risk of avian predation. (Burkett, Tr. 8/18/94 at 265.) It is also quite possible that marbled murrelets faced with nesting in substandard habitat will simply choose not to nest. (*Id.*)

100. While marbled murrelets fly inland in greater numbers during the nesting season, there is evidence that

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44. One NRM surveyor even noted that he observed a northern spotted owl being "mobbed by stellar jays as it came out of the clear cut area to the north" of THP-237. (Pls.' Ex. 292, Station 2, June 9, 1992.)

murrelets visit inland sites year-round. (Nelson, Tr. 8/16/94 at 20-21, 28 and 50; Carter, Tr. 8/15/94 at 109, 131; Speich Tr. 9/8/94 at 67.) Therefore, it is likely that marbled murrelets use THP-237 and the Owl Creek forest during non-nesting times of the year. (Carter, Tr. 8/15/94 at 109.) Year-round use of inland sites is documented in the region. (Nelson, Tr. 8/16/94 at 50; Speich, Tr. 9/8/94 at 67.) Consequently, the court finds that the proposed logging of THP-237, even outside of the nesting season, will "harm" the marbled murrelet by destroying its critical nesting habitat. (Burkett, Tr. 8/18/94 at 270.)

2. Harass

101. Implementing the proposed timber harvest plan during the breeding season creates the likelihood of injury to marbled murrelets by annoying them to such an extent that it will significantly disrupt their normal behavioral patterns. (Nelson, Tr. 8/16/94 at 70.) This was clearly demonstrated by the precipitous decline in marbled murrelet detections at THP-237 in July 1992, after Pacific Lumber conducted logging operations at the beginning of what should have been the peak period for marbled murrelet detectability. (*Id.* at 67; Moore, Tr. 8/17/94 at 151-52.)

102. Pacific Lumber maintains that by harvesting THP-237 during the fall or spring, it will successfully avoid harassing murrelets because they are not in the stand. At this time, it is impossible to determine whether Pacific Lumber's argument is correct. Marbled murrelets are known to fly inland during the non-breeding season; however, no surveys have been taken in Owl Creek during this period. Nevertheless, in light of the court's finding that harvesting in Owl Creek at any time of the year will "harm" the marbled murrelet, the court will not lift

the injunction to allow Pacific Lumber to harvest THP-237 during the non-breeding season.

I. Permanent Injunction

103. In cases involving the ESA, Congress has removed from the courts their traditional equitable discretion in injunction proceedings of balancing the parties' competing interests. *TVA v. Hill*, 437 U.S. 153, 173, 187-88, 98 S.Ct. 2279, 2291, 2298-99, 57 L.Ed.2d 117 (1978); *Sierra Club v. Marsh*, 816 F.2d 1376, 1383 (9th Cir.1987). In *TVA*, the Supreme Court stated that the "language, history, and structure" of the ESA demonstrates Congress' determination that the balance of hardships and the public interest tip heavily in favor of endangered species. *TVA* 437 U.S. at 174, 187-88, 194-95, 98 S.Ct, at 2292, 2298-99, 2301-02. Thus, the court "may not use equity's scales to strike a different balance." *Marsh*, 816 F.2d at 1383.

104. To prevail in an injunctive proceeding under the ESA, the plaintiff must show that "a violation of the ESA is at least likely in the future," or that there is "a definite threat of future harm to [a] protected species." *Burlington Northern*, 23 F.3d at 1512, n. 8. Future harm to a species need not be shown with certainty before an permanent injunction may issue, but "mere speculation" will not suffice. *Id.*

105. In this case, EPIC has demonstrated that Pacific Lumber's proposed implementation of THP-237 imposes a definite threat of future harm to the marbled murrelet. The harvesting of THP-237 will likely cause a violation of the ESA by sufficiently degrading the birds' critical nesting habitat to the extent that it will significantly impair the marbled murrelets' essential behavioral patterns, including breeding,

feeding and sheltering. Consequently, EPIC has demonstrated that a permanent injunction is warranted in this case.[45]

III. *CONCLUSIONS OF LAW*

106. Pacific Lumber's implementation of THP-237 will "harm" the marbled murrelet as defined in 50 C.F.R. § 17.3, and thereby cause a "take" of the species in violation of 16 U.S.C. § 1538(a)(1)(B).

107. Pacific Lumber's implementation of THP-237 will "harass" the marbled murrelet as defined in 50 C.F.R. § 17.3, and thereby cause a "take" of the species in violation of 16 U.S.C. § 1538(a)(1)(B).

108. A permanent injunction prohibiting Pacific Lumber's implementation of THP-237 is warranted under 16 U.S.C. § 1540.

109. Plaintiffs are entitled to recover their costs, including reasonable attorney and expert witness fees, in accordance with 16 U.S.C. § 1540(g)(4).

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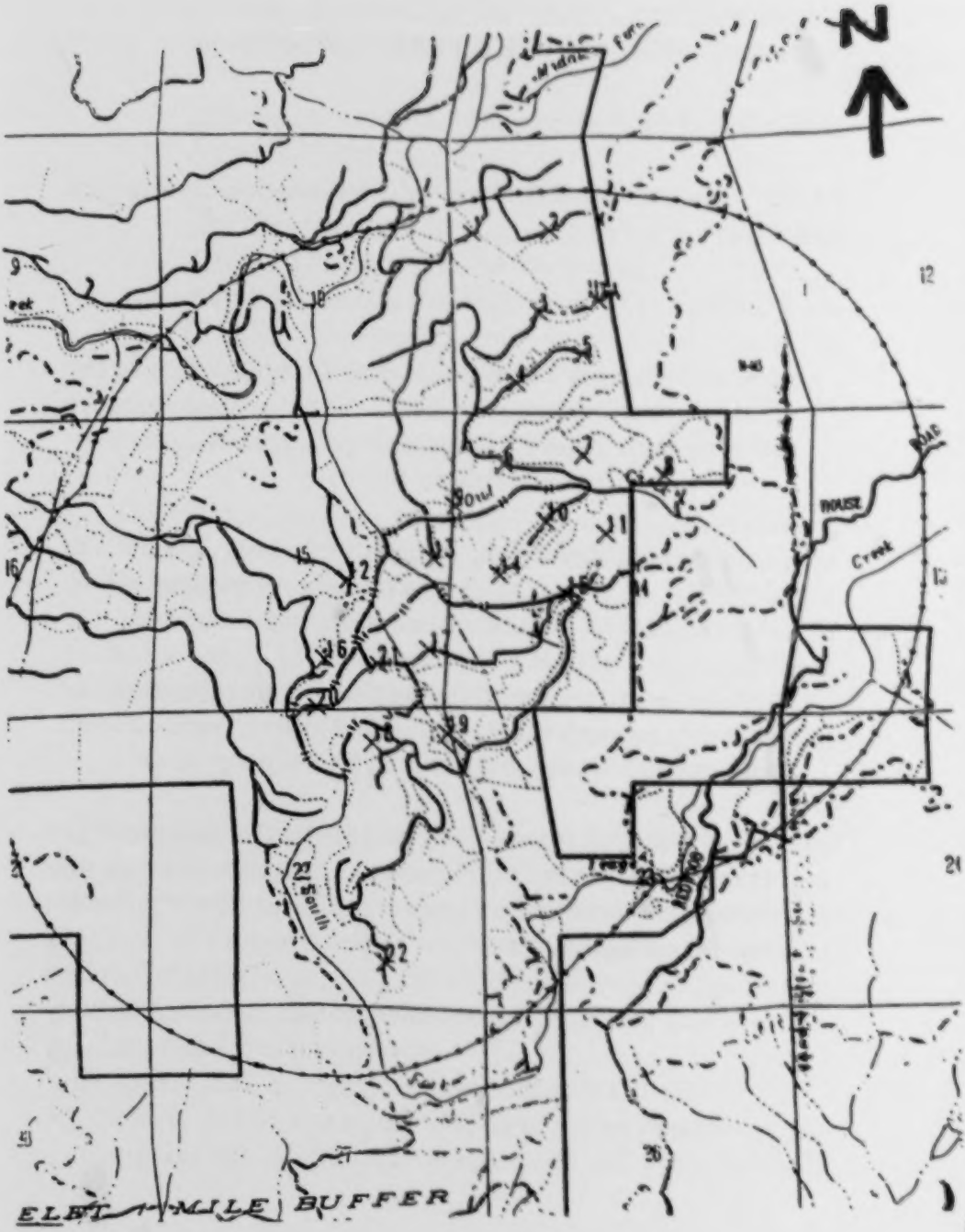
45. Even under the traditional balancing of the equities test, EPIC has demonstrated that a permanent injunction is warranted in this case. Pacific Lumber may not be forever foreclosed from harvesting THP-237. If Pacific Lumber can establish through reliable surveys, conducted by an independent and impartial third party in strict compliance with the PSG Protocol, that THP-237 is not "occupied" by the marbled murrelet, it could seek to have the injunction lifted or modified. Also, Pacific Lumber could submit, and receive approval of, a habitat conservation plan in accordance with 16 U.S.C. § 1539(a)(2). Although Pacific Lumber has already submitted a draft HCP to the DFG and USF & WS, to the extent that this HCP is based on the survey techniques employed by Pacific Lumber at THP-237, the court believes that its reliability is highly suspect.

Appendix C

APPENDIX A

(Excerpted from Plaintiffs' Exhibit 285 and Defendant's Exhibit 841, and directional arrow added for clarity)

Appendix C



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APPENDIX D — RELEVANT STATUTES, REGULATIONS AND RULES

ENDANGERED SPECIES ACT

16 U.S.C.S. § 1531:

§ 1531. Congressional findings and declaration of purposes and policy

(a) Findings. The Congress finds and declares that—

(1) various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation;

(2) other species of fish, wildlife, and plants have been so depleted in numbers that they are in danger of or threatened with extinction;

(3) these species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people;

(4) the United States has pledged itself as a sovereign state in the international community to conserve to the extent practicable the various species of fish or wildlife and plants facing extinction, pursuant to—

(A) migratory bird treaties with Canada and Mexico;

(B) the Migratory and Endangered Bird Treaty with Japan;

(C) the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere;

(D) the International Convention for the Northwest Atlantic Fisheries;

(E) the International Convention for the High Seas Fisheries of the North Pacific Ocean;

(F) the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and

(G) other international agreements. [; and]

(5) encouraging the States and other interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and international standards is a key to meeting the Nation's international commitments and to better safeguarding, for the benefit of all citizens, the Nation's heritage in fish, wildlife, and plants.

(b) Purposes. The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.

(c) Policy. (1) It is further declared to be the policy of Congress that all Federal departments and agencies shall

seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.

(2) It is further declared to be the policy of Congress that Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.

(Dec. 28, 1973, P. L. 93-205, § 2, 87 Stat. 884; Dec. 28, 1979, P. L. 96-159, § 1, 93 Stat. 1225; Oct. 13, 1982, P. L. 97-304, § 9(a), 96 Stat. 1426.)

16 U.S.C.S. § 1532:

§ 1532. Definitions

For the purposes of this Act—

(1) The term "alternative courses of action" means all alternatives and thus is not limited to original project objectives and agency jurisdiction.

(2) The term "commercial activity" means all activities of industry and trade, including, but not limited to, the buying or selling of commodities and activities conducted for the purpose of facilitating such buying and selling: Provided, however, That it does not include exhibition of commodities by museums or similar cultural or historical organizations.

(3) The terms "conserve", "conserving", and "conservation" mean to use and the use of all methods and procedures which are necessary to bring any endangered

species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

(4) The term "Convention" means the Convention on International Trade in Endangered Species of Wild Fauna and Flora, signed on March 3, 1973, and the appendices thereto.

(5)(A) The term "critical habitat" for a threatened or endangered species means—

(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act [15 USCS § 1533], on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and

(ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act [15 USCS § 1533], upon a determination by the Secretary that such areas are essential for the conservation of the species.

(B) Critical habitat may be established for those species now listed as threatened or endangered species for which no critical habitat has heretofore been established as set forth in subparagraph (A) of this paragraph.

(C) Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species.

(6) The term "endangered species" means any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this Act would present an overwhelming and overriding risk to man.

(7) The term "Federal agency" means any department, agency, or instrumentality of the United States.

(8) The term "fish or wildlife" means any member of the animal kingdom, including without limitation any mammal, fish, bird (including any migratory, nonmigratory, or endangered bird for which protection is also afforded by treaty or other international agreement), amphibian, reptile, mollusk, crustacean, arthropod or other invertebrate, and includes any part, product, egg, or offspring thereof, or the dead body or parts thereof.

(9) The term "foreign commerce" includes, among other things, any transaction—

(A) between persons within one foreign country;

(B) between persons in two or more foreign countries;

(C) between a person within the United States and a person in a foreign country; or

(D) between persons within the United States, where the fish and wildlife in question are moving in any country or countries outside the United States.

(10) The term "import" means to land on, bring into, or introduce into, or attempt to land on, bring into, or introduce into, any place subject to the jurisdiction of the United States, whether or not such landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States.

(11) [Repealed]

(12) The term "permit or license applicant" means, when used with respect to an action of a Federal agency for which exemption is sought under section 7 [16 USCS § 1536], any person whose application to such agency for a permit or license has been denied primarily because of the application of section 7(a) [16 USCS § 1536(a)] to such agency action.

(13) The term "person" means an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State, or of any

foreign government; any State, municipality, or political subdivision of a State; or any other entity subject to the jurisdiction of the United States.

(14) The term "plant" means any member of the plant kingdom, including seeds, roots and other parts thereof.

(15) The term "Secretary" means, except as otherwise herein provided, the Secretary of the Interior or the Secretary of Commerce as program responsibilities are vested pursuant to the provisions of Reorganization Plan Numbered 4 of 1970 [5 USCS § 903 note]; except that with respect to the enforcement of the provisions of this Act and the Convention which pertain to the importation or exportation of terrestrial plants, the term also means the Secretary of Agriculture.

(16) The term "species" includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.

(17) The term "State" means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the Virgin Islands, Guam, and the Trust Territory of the Pacific Islands.

(18) the term "State agency" means any State agency, department, board, commission, or other governmental entity which is responsible for the management and conservation of fish, plant, or wildlife resources within a State.

(19) The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

(20) The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

(21) The term "United States", when used in a geographical context, includes all States.

(Dec. 28, 1973, P. L. 93-205, § 3, 87 Stat. 885; July 12, 1976, P. L. 94-359, § 5, 90 Stat. 913; Nov. 10, 1978, P. L. 95-632, § 2, 92 Stat. 3751; Dec. 28, 1979, P. L. 96-159, § 2, 93 Stat. 1225; Oct. 13, 1982, P. L. 97-304, § 4(b), 96 Stat. 1420.)

16 U.S.C.S. § 1538:

§ 1538. Prohibited acts

(a) Generally. (1) Except as provided in sections 6(g)(2) and 10 of this Act [16 USCS §§ 1535(g)(2), 1539], with respect to any endangered species of fish or wildlife listed pursuant to section 4 of this Act [16 USCS § 1533] it is unlawful for any person subject to the jurisdiction of the United States to—

(A) import any such species into, or export any such species from the United States;

(B) take any such species within the United States or the territorial sea of the United States;

(C) take any such species upon the high seas;

(D) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such species taken in violation of subparagraphs (B) and (C);

(E) deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of a commercial activity, any such species;

(F) sell or offer for sale in interstate or foreign commerce any such species; or

(G) violate any regulation pertaining to such species or to any threatened species of fish or wildlife listed pursuant to section 4 of this Act [16 USCS § 1533] and promulgated by the Secretary pursuant to authority provided by this Act.

(2) Except as provided in sections 6(g)(2) and 10 of this Act [16 USCS §§ 1535(g)(2), 1539], with respect to any endangered species of plants listed pursuant to section 4 of this Act [16 USCS § 1533], it is unlawful for any person subject to the jurisdiction of the United States to—

(A) import any such species into, or export any such species from, the United States;

(B) remove and reduce to possession any such species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any such area; or remove, cut, dig up, or damage or

destroy any such species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law;

(C) deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of a commercial activity, any such species;

(D) sell or offer for sale in interstate or foreign commerce any such species; or

(E) violate any regulation pertaining to such species or to any threatened species of plants listed pursuant to section 4 of this Act [16 USCS § 1533] and promulgated by the Secretary pursuant to authority provided by this Act.

(b) Species held in captivity or controlled environment. (1) The provisions of subsections (a)(1)(A) and (a)(1)(G), of this section shall not apply to any fish or wildlife which was held in captivity or in a controlled environment on (A) December 28, 1973, or (B) the date of the publication in the Federal Register of a final regulation adding such fish or wildlife species to any list published pursuant to subsection (c) of section 4 of this Act [16 USCS § 1533(c)]: Provided, That such holding and any subsequent holding or use of the fish or wildlife was not in the course of a commercial activity. With respect to any act prohibited by subsections (a)(1)(A) and (a)(1)(G) of this section which occurs after a period of 180 days from (i) December 28, 1973, or (ii) the date of publication in the Federal Register of a final regulation

adding such fish or wildlife species to any list published pursuant to subsection (c) of section 4 of this Act [16 USCS § 1533(c)], there shall be a rebuttable presumption that the fish or wildlife involved in such act is not entitled to the exemption contained in this subsection.

(2)(A) The provisions of subsection (a)(1) shall not apply to—

(i) any raptor legally held in captivity or in a controlled environment on the effective date of the Endangered Species Act Amendments of 1978; or

(ii) any progeny of any raptor described in clause (i);

until such time as any such raptor or progeny is intentionally returned to a wild state.

(B) Any person holding any raptor or progeny described in subparagraph (A) must be able to demonstrate that the raptor or progeny does, in fact, qualify under the provisions of this paragraph, and shall maintain and submit to the Secretary, on request, such inventories, documentation, and records as the Secretary may by regulation require as being reasonably appropriate to carry out the purposes of this paragraph. Such requirements shall not unnecessarily duplicate the requirements of other rules and regulations promulgated by the Secretary.

(c) Violation of Convention. (1) It is unlawful for any person subject to the jurisdiction of the United States to engage in any trade in any specimens contrary to the

provisions of the Convention, or to possess any specimens traded contrary to the provisions of the Convention, including the definitions of terms in article I thereof.

(2) Any importation into the United States of fish or wildlife shall, if—

(A) such fish or wildlife is not an endangered species listed pursuant to section 4 of this Act [16 USCS § 1533] but is listed in Appendix II to the Convention,

(B) the taking and exportation of such fish or wildlife is not contrary to the provisions of the Convention and all other applicable requirements of the Convention have been satisfied,

(C) the applicable requirements of subsections (d), (e), and (f) of this section have been satisfied, and

(D) such importation is not made in the course of a commercial activity,

be presumed to be an importation not in violation of any provision of this Act or any regulation issued pursuant to this Act.

(d) Imports and exports. (1) In general. It is unlawful for any person, without first having obtained permission from the Secretary, to engage in business—

(A) as an importer or exporter of fish or wildlife (other than shellfish and fishery products which (i) are not listed pursuant to section 4 of this Act [16

USCS § 1533] as endangered species or threatened species, and (ii) are imported for purposes of human or animal consumption or taken in waters under the jurisdiction of the United States or on the high seas for recreational purposes) or plants; or

(B) as an importer or exporter of any amount of raw or worked African elephant ivory.

(2) Requirements. Any person required to obtain permission under paragraph (1) of this subsection shall—

(A) keep such records as will fully and correctly disclose each importation or exportation of fish, wildlife, plants, or African elephant ivory made by him and the subsequent disposition made by him with respect to such fish, wildlife, plants, or ivory;

(B) at all reasonable times upon notice by a duly authorized representative of the Secretary, afford such representative access to his place of business, an opportunity to examine his inventory of imported fish, wildlife, plants, or African elephant ivory and the records required to be kept under subparagraph (A) of this paragraph, and to copy such records; and

(C) file such reports as the Secretary may require.

(3) Regulations. The Secretary shall prescribe such regulations as are necessary and appropriate to carry out the purposes of this subsection.

(4) Restriction on consideration of value or amount of

African elephant ivory imported or exported. In granting permission under this subsection for importation or exportation of African elephant ivory, the Secretary shall not vary the requirements for obtaining such permission on the basis of the value or amount of ivory imported or exported under such permission.

(e) **Reports.** It is unlawful for any person importing or exporting fish or wildlife (other than shellfish and fishery products which (1) are not listed pursuant to section 4 of this Act [16 USCS § 1533] as endangered or threatened species, and (2) are imported for purposes of human or animal consumption or taken in waters under the jurisdiction of the United States or on the high seas for recreational purposes) or plants to fail to file any declaration or report as the Secretary deems necessary to facilitate enforcement of this Act or to meet the obligations of the Convention.

(f) **Designation of ports.** (1) It is unlawful for any person subject to the jurisdiction of the United States to import into or export from the United States any fish or wildlife (other than shellfish and fishery products which (A) are not listed pursuant to section 4 of this Act [16 USCS § 1533] as endangered species or threatened species, and (B) are imported for purposes of human or animal consumption or taken in waters under the jurisdiction of the United States or on the high seas for recreational purposes) or plants, except at a port or ports designated by the Secretary of the Interior. For the purpose of facilitating enforcement of this Act and reducing the costs thereof, the Secretary of the Interior, with approval of the Secretary of the Treasury and after notice and opportunity for public hearing, may, by regulation, designate

ports and change such designations. The Secretary of the Interior, under such terms and conditions as he may prescribe, may permit the importation or exportation at nondesignated ports in the interest of the health or safety of the fish or wildlife or plants, or for other reasons if, in his discretion, he deems it appropriate and consistent with the purpose of this subsection.

(2) Any port designated by the Secretary of the Interior under the authority of section 4(d) of the Act of December 5, 1969 (16 U.S.C. 666cc-4(d)), shall, if such designation is in effect on the day before the date of the enactment of this Act [enacted Dec. 28, 1973], be deemed to be a port designated by the Secretary under paragraph (1) of this subsection until such time as the Secretary otherwise provides.

(g) Violations. It is unlawful for any person subject to the jurisdiction of the United States to attempt to commit, solicit another to commit, or cause to be committed, any offense defined in this section.

(Dec. 28, 1973, P. L. 93-205, § 9, 87 Stat. 893; Nov. 10, 1978, P. L. 95-632, § 4, 92 Stat. 3760; Oct. 13, 1982, P. L. 97-304, § 9(b), 96 Stat. 1426.)

16 U.S.C.S. § 1540:

§ 1540. Penalties and enforcement

(a) Civil penalties. (1) Any person who knowingly violates, and any person engaged in business as an importer or exporter of fish, wildlife, or plants who violates, any

provision of this Act or any provision of any permit or certificate issued hereunder, or any regulation issued in order to implement subsection (a)(1)(A), (B), (C), (D), (E), or (F), (a)(2)(A), (B), (C), or (D), (c), (d) (other than regulation relating to recordkeeping or filing of reports), (f) or (g) of section 9 of this Act [16 USCS § 1538(a)(1)(A), (B), (C), (D), (E), or (F), (2)(A), (B), (C), or (D), (c), (d), (f), or (g)], may be assessed a civil penalty by the Secretary of not more than $25,000 for each violation. Any person who knowingly violates, and any person engaged in business as an importer or exporter of fish, wildlife, or plants who violates, any provision of any other regulation issued under this Act may be assessed a civil penalty by the Secretary of not more than $12,000 for each such violation. Any person who otherwise violates any provision of this Act, or any regulation, permit, or certificate issued hereunder, may be assessed a civil penalty by the Secretary of not more than $500 for each such violation. No penalty may be assessed under this subsection unless such person is given notice and opportunity for a hearing with respect to such violation. Each violation shall be a separate offense. Any such civil penalty may be remitted or mitigated by the Secretary. Upon any failure to pay a penalty assessed under this subsection, the Secretary may request the Attorney General to institute a civil action in a district court of the United States for any district in which such person is found, resides, or transacts business to collect the penalty and such court shall have jurisdiction to hear and decide any such action. The court shall hear such action on the record made before the Secretary and shall sustain his action if it is supported by substantial evidence on the record considered as a whole.

(2) Hearings held during proceedings for the assessment

of civil penalties authorized by paragraph (1) of this subsection shall be conducted in accordance with section 554 of title 5, United States Code [5 USCS § 554]. The Secretary may issue subpenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and administer oaths. Witnesses summoned shall be paid the same fees and mileage that are paid to witnesses in the courts of the United States. In case of contumacy or refusal to obey a subpena served upon any person pursuant to this paragraph, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the Secretary or to appear and produce documents before the Secretary, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

(3) Notwithstanding any other provision of this Act, no civil penalty shall be imposed if it can be shown by a preponderance of the evidence that the defendant committed an act based on a good faith belief that he was acting to protect himself or herself, a member of his or her family, or any other individual from bodily harm, from any endangered or threatened species.

(b) Criminal violations. (1) Any person who knowingly violates any provision of this Act, of any permit or certificate issued hereunder, or of any regulation issued in order to implement subsection (a)(1)(A), (B), (C), (D), (E), or (F); (a)(2)(A), (B), (C), or (D), (c), (d) (other than a regulation

relating to recordkeeping, or filing of reports), (f), or (g) of section 9 of this Act [16 USCS § 1538(a)(1)(A), (B), (C), (D), (E), or (F), (2)(A), (B), (C), or (D), (c), (d), (f), or (g)] shall, upon conviction, be fined not more than $50,000 or imprisoned for not more than one year, or both. Any person who knowingly violates any provision of any other regulation issued under this Act shall, upon conviction, be fined not more than $25,000 or imprisoned for not more than six months, or both.

(2) The head of any Federal agency which has issued a lease, license, permit, or other agreement authorizing a person to import or export fish, wildlife, or plants, or to operate a quarantine station for imported wildlife, or authorizing the use of Federal lands, including grazing of domestic livestock, to any person who is convicted of a criminal violation of this Act or any regulation, permit, or certificate issued hereunder may immediately modify, suspend, or revoke each lease, license, permit, or other agreement. The Secretary shall also suspend for a period of up to one year, or cancel, any Federal hunting or fishing permits or stamps issued to any person who is convicted of a criminal violation of any provision of this Act or any regulation, permit, or certificate issued hereunder. The United States shall not be liable for the payments of any compensation, reimbursement, or damages in connection with the modification, suspension, or revocation of any leases, licenses, permits, stamps, or other agreements pursuant to this section.

(3) Notwithstanding any other provision of this Act, it shall be a defense to prosecution under this subsection if the defendant committed the offense based on a good faith

belief that he was acting to protect himself or herself, a member of his or her family, or any other individual, from bodily harm from any endangered or threatened species.

(e) District court jurisdiction. The several district courts of the United States, including the courts enumerated in section 460 of title 28, United States Code [28 USCS § 460], shall have jurisdiction over any actions arising under this Act. For the purpose of this Act, American Samoa shall be included within the judicial district of the District Court of the United States for the District of Hawaii.

(d) Rewards and certain incidental expenses. The Secretary or the Secretary of the Treasury shall pay, from sums received as penalties, fines, or forfeitures of property for any violation of this Act or any regulation issued hereunder (1) a reward to any person who furnishes information which leads to an arrest, a criminal conviction, civil penalty assessment, or forfeiture of property for any violation of this Act or any regulation issued hereunder, and (2) the reasonable and necessary costs incurred by any person in providing temporary care for any fish, wildlife, or plant pending the disposition of any civil or criminal proceeding alleging a violation of this Act with respect to that fish, wildlife, or plant. The amount of the reward, if any, is to be designated by the Secretary or the Secretary of the Treasury, as appropriate. Any officer or employee of the United States or any State or local government who furnishes information or renders service in the performance of his official duties is ineligible for payment under this subsection. Whenever the balance of sums received under this section and section 6(d) of the Act of November 16, 1981 (16 U.S.C. 3375(d)), as penalties or fines, or from forfeitures of property, exceed

$500,000, the Secretary of the Treasury shall deposit an amount equal to such excess balance in the cooperative endangered species conservation fund established under section 6(i) of this Act [16 USCS § 1535(i)].

(e) Enforcement. (1) The provisions of this Act and any regulations or permits issued pursuant thereto shall be enforced by the Secretary, the Secretary of the Treasury, or the Secretary of the Department in which the Coast Guard is operating, or all such Secretaries. Each such Secretary may utilize by agreement, with or without reimbursement, the personnel, services, and facilities of any other Federal agency or any State agency for purposes of enforcing this Act.

(2) The judges of the district courts of the United States and the United States magistrates may, within their respective jurisdictions, upon proper oath or affirmation showing probable cause, issue such warrants or other process as may be required for enforcement of this Act and any regulation issued thereunder.

(3) Any person authorized by the Secretary, the Secretary of the Treasury, or the Secretary of the Department in which the Coast Guard is operating, to enforce this Act may detain for inspection and inspect any package, crate, or other container, including its contents, and all accompanying documents, upon importation or exportation. Such person may make arrests without a warrant for any violation of this Act if he has reasonable grounds to believe that the person to be arrested is committing the violation in his presence or view, and may execute and serve any arrest warrant, search warrant, or other warrant or civil or criminal process issued by any officer or

court of competent jurisdiction for enforcement of this Act. Such person so authorized may search and seize, with or without a warrant, as authorized by law. Any fish, wildlife, property, or item so seized shall be held by any person authorized by the Secretary, the Secretary of the Treasury, or the Secretary of the Department in which the Coast Guard is operating pending disposition of civil or criminal proceedings, or the institution of an action in rem for forfeiture of such fish, wildlife, property, or item pursuant to paragraph (4) of this subsection; except that the Secretary may, in lieu of holding such fish, wildlife, property, or item, permit the owner or consignee to post a bond or other surety satisfactory to the Secretary, but upon forfeiture of any such property to the United States, or the abandonment or waiver of any claim to any such property, it shall be disposed of (other than by sale to the general public) by the Secretary in such a manner, consistent with the purposes of this Act, as the Secretary shall by regulation prescribe.

(4)(A) All fish or wildlife or plants taken, possessed, sold, purchased, offered for sale or purchase, transported, delivered, received, carried, shipped, exported, or imported contrary to the provisions of this Act, any regulation made pursuant thereto, or any permit or certificate issued hereunder shall be subject to forfeiture to the United States.

(B) All guns, traps, nets, and other equipment, vessels, vehicles, aircraft, and other means of transportation used to aid the taking, possessing, selling, purchasing, offering for sale or purchase, transporting, delivering, receiving, carrying, shipping, exporting, or importing of any fish or wildlife or plants in violation of this Act, any regulation

made pursuant thereto, or any permit or certificate issued thereunder shall be subject to forfeiture to the United States upon conviction of a criminal violation pursuant to section 11(b)(1) of this Act [subsec. (b)(1) of this section].

(5) All provisions of law relating to the seizure, forfeiture, and condemnation of a vessel for violation of the customs laws, the disposition of such vessel or the proceeds from the sale thereof, and the remission or mitigation of such forfeiture, shall apply to the seizures and forfeitures incurred, or alleged to have been incurred, under the provisions of this Act, insofar as such provisions of law are applicable and not inconsistent with the provisions of this Act; except that all powers, rights, and duties conferred or imposed by the customs laws upon any officer or employee of the Treasury Department shall, for the purposes of this Act, be exercised or performed by the Secretary or by such persons as he may designate.

(6) The Attorney General of the United States may seek to enjoin any person who is alleged to be in violation of any provision of this Act or regulation issued under authority thereof.

(f) Regulations. The Secretary, the Secretary of the Treasury, and the Secretary of the Department in which the Coast Guard is operating, are authorized to promulgate such regulations as may be appropriate to enforce this Act, and charge reasonable fees for expenses to the Government connected with permits or certificates authorized by this Act including processing applications and reasonable inspections, and with the transfer, board, handling, or storage

of fish or wildlife or plants and evidentiary items seized and forfeited under this Act. All such fees collected pursuant to this subsection shall be deposited in the Treasury to the credit of the appropriation which is current and chargeable for the cost of furnishing the services. Appropriated funds may be expended pending reimbursement from parties in interest.

(g) Citizen suits. (1) Except as provided in paragraph (2) of this subsection any person may commence a civil suit on his own behalf—

(A) to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh amendment to the Constitution), who is alleged to be in violation of any provision of this Act or regulation issued under the authority thereof; or

(B) to compel the Secretary to apply, pursuant to section 6(g)(2)(B)(ii) of this Act [16 USCS § 1535(g)(2)(B)(ii)], the prohibitions set forth in or authorized pursuant to section 4(d) or section 9(a)(1)(B) of this Act [16 USCS §§ 1533(d), 1538(a)(1)(B)] with respect to the taking of any resident endangered species or threatened species within any State; or

(C) against the Secretary where there is alleged a failure of the Secretary to perform any act or duty under section 4 [16 USCS § 1533] which is not discretionary with the Secretary.

The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to

enforce any such provision or regulation, or to order the Secretary to perform such act or duty, as the case may be. In any civil suit commenced under subparagraph (B) the district court shall compel the Secretary to apply the prohibition sought if the court finds that the allegation that an emergency exists is supported by substantial evidence.

(2)(A) No action may be commenced under subparagraph (1)(A) of this section—

(i) prior to sixty days after written notice of the violation has been given to the Secretary, and to any alleged violator of any such provision or regulation;

(ii) if the Secretary has commenced action to impose a penalty pursuant to subsection (a) of this section; or

(iii) if the United States has commenced and is diligently prosecuting a criminal action in a court of the United States or a State to redress a violation of any such provision or regulation.

(B) No action may be commenced under subparagraph (1)(B) of this section—

(i) prior to sixty days after written notice has been given to the Secretary setting forth the reasons why an emergency is thought to exist with respect to an endangered species or a threatened species in the State concerned; or

(ii) if the Secretary has commenced and is diligently prosecuting action under section 6(g)(2)(B)(ii) of this Act [16 USCS § 1535(g)(2)(B)(ii)] to determine whether any such emergency exists.

(C) No action may be commenced under subparagraph (1)(C) of this section prior to sixty days after written notice has been given to the Secretary; except that such action may be brought immediately after such notification in the case of an action under this section respecting an emergency posing a significant risk to the well-being of any species of fish or wildlife or plants.

(3)(A) Any suit under this subsection may be brought in the judicial district in which the violation occurs.

(B) In any such suit under this subsection in which the United States is not a party, the Attorney General, at the request of the Secretary, may intervene on behalf of the United States as a matter of right.

(4) The court, in issuing any final order in any suit brought pursuant to paragraph (1) of this subsection, may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such award is appropriate.

(5) The injunctive relief provided by this subsection shall not restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any standard or limitation or to seek any other relief (including relief against the Secretary or a State agency).

(h) Coordination with other laws. The Secretary of Agriculture and the Secretary shall provide for appropriate coordination of the administration of this Act with the administration of the animal quarantine laws (21 U.S.C. 101-105, 111-135b, and 612-614) [21 USCS §§ 101-105, 111-135b, 612-614] and section 306 of the Tariff Act of 1930 (19 U.S.C.

1306) [19 USCS § 1306]. Nothing in this Act or any amendment made by this Act shall be construed as superseding or limiting in any manner the functions of the Secretary of Agriculture under any other law relating to prohibited or restricted importations or possession of animals and other articles and no proceeding or determination under this Act shall preclude any proceeding or be considered determinative of any issue of fact or law in any proceeding under any Act administered by the Secretary of Agriculture. Nothing in this Act shall be construed as superseding or limiting in any manner the functions and responsibilities of the Secretary of the Treasury under the Tariff Act of 1930, including, without limitation, section 527 of that Act (19 U.S.C. 1527) [19 USCS § 1527], relating to the importation of wildlife taken, killed, possessed, or exported to the United States in violation of the laws or regulations of a foreign country.

(Dec. 28, 1973, P. L. 93-205, § 11, 87 Stat. 897; July 12, 1976, P. L. 94-359, § 4, 90 Stat. 913; Nov. 10, 1978, P. L. 95-632, §§ 6-8, 92 Stat. 3761; Nov. 16, 1981, P. L. 97-79, § 9(e), 95 Stat. 1079; Oct. 13, 1982, P. L. 97-304, §§ 7, 9(c), 96 Stat. 1425, 1427; June 25, 1984, P. L. 98-32-7, § 4, in part, 98 Stat. 271.)

Appendix D

CODE OF FEDERAL REGULATIONS

50 C.F.R. § 17.3 (1994):

Harm in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

Appendix D

FEDERAL RULES OF EVIDENCE

RULE 401:

"Relevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.

RULE 402:

All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority. Evidence which is not relevant is not admissible.

RULE 702:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.